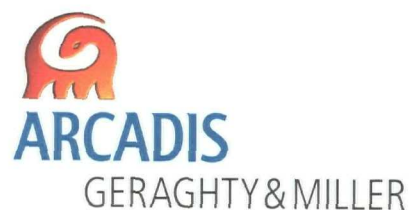




1998 Groundwater Quality Assessment Report Sylvan Slough Removal Action Site Rock Island, Illinois

Navistar International Transportation Corp. and
Burlington Northern and Santa Fe Railway Co.
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R E P O R T

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1998 GROUNDWATER QUALITY
ASSESSMENT REPORT
SYLVAN SLOUGH REMOVAL ACTION SITE
ROCK ISLAND, ILLINOIS

October 1998

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Executive Summary

ARCADIS Geraghty & Miller was retained by Navistar International Transportation Corp. (Navistar) and Burlington Northern and Santa Fe Railway Co. Railroad (BNSF) to review the available groundwater quality data from the Navistar, BNSF, Quad City Industrial Center (QCIC), and Iowa Interstate Railroad, Ltd. (IIR) properties (Sylvan Slough Removal Action Site) located in Rock Island, Illinois and summarize the data with respect to the presence of hazardous substances. The groundwater data evaluation was performed at the request of the United States Environmental Protection Agency (USEPA) to evaluate potential impacts to the Sylvan Slough, located directly north of the site, from hazardous substances previously detected in groundwater samples at the site.

The objectives of the groundwater quality data evaluation were to summarize the describe the trends and distribution of hazardous substances in groundwater, and to identify gaps, if any, in the site characterization data. Groundwater sampling activities were conducted at the Sylvan Slough Site during the time period from May 1988 to July 1994. Analytical parameters lists utilized included volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), metals, phenols, cyanide, oil and grease, and total petroleum hydrocarbons (TPH).

The Sylvan Slough Removal Action Site (site) is located along the Sylvan Slough between the Iowa Interstate Railroad bridge and the former International Harvester Farmall (Farmall) manufacturing facility, currently known as the Quad City Industrial Center (QCIC) in the City of Rock Island, Rock Island County, Illinois. The Sylvan Slough is a portion of the Mississippi River that flows between the Sylvan Slough Removal Action Site and the Rock Island Arsenal. The Iowa Interstate Railroad is located to the south of the Navistar/BNSF properties. The southern bank of the slough forms the northern boundary of the Navistar/BNSF properties. The bank of the slough is steep sided and approximately 20 feet high.

Free-phase oil intermittently seeps from the base of the bank into the slough where it forms an iridescent film on the water. The geological and hydrogeological conditions which allow seepage to occur are discussed below.

The site is underlain by fill in the area immediately adjacent to the river. The fill is composed of fine- to medium-grained foundry sands, with lesser amounts of crushed glass, slag and timber as observed in samples collected from soil borings completed at the site. The Upper Fill Unit is locally underlain adjacent to the slough by a stiff to dense, olive green, silty clay unit (i.e., the Confining Clay). The

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Confining Clay ranges from one foot to greater than five feet in thickness in the zone adjacent to the river, and thins to the south. The Confining Clay appears to extend into the slough to form the river bed close to the bank. The Confining Clay pinches out (i.e., absent) to the south and does not appear to extend beneath the Iowa Interstate property. The upper and lower surfaces of the clay are irregular.

The Lower Sand and Gravel Unit underlies the Confining Clay, and contains sand and gravel with shell fragments, and pebbles of limestone, sandstone, shale and various igneous rocks. The Lower Sand and Gravel Unit is underlain by shale bedrock. The shale slopes upward away from the slough beneath the unconsolidated materials.

Horizontal hydraulic gradients in the Upper Fill Unit are generally from south to north towards the slough. Hydraulic heads in the Upper Fill Unit are greater than those in the Lower Sand and Gravel Unit resulting in a potential for groundwater flow from the Upper Fill Unit to the Lower Sand and Gravel Unit. However, the hydraulic conductivity of the clay unit is low, so the groundwater flux between the two units is expected to be small. The Lower Sand and Gravel Unit below the Clay Confining Unit is fully saturated based upon the water level data from the site wells. Hydraulic heads are above the base of the overlying clay, reflecting the confined nature of the Lower Sand and Gravel Unit. It is possible that small portions of the Lower Sand and Gravel may become unsaturated at low stages in the river.

The following are the conclusions and recommendations based on the data contained in this report.

Conclusions

1. Chlorinated VOCs were not detected in samples collected from 23 monitoring well locations. Chlorinated VOCs were initially detected in samples collected from five monitoring wells: MW-2, MW-4, MW-5, MW-6 and MW-8. Chlorinated VOCs were not detected in the more recent sampling events for each well, indicating that the chlorinated compounds were no longer present at these well locations.
2. BTEX compounds were not detected in samples collected from 20 monitoring well locations. BTEX was initially detected in samples collected from monitoring wells GM-5, MW-5, MW-6, MW-7 and MW-8, but BTEX was not detected in samples collected from these wells during more recent sampling events, indicating that BTEX was no longer present at these locations. BTEX was detected in the last round of samples collected from wells MW-2 and MW-3, and

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the Class I Groundwater Remediation Objective for benzene was exceeded in the samples from each well. These wells are located on the Navistar property east of the Sylvan Slough site and north of the QCIC. BTEX was detected in samples from MW-9, but the results may not be representative due to the presence of free product in the well.

3. Other VOCs were detected, but the compounds are typical laboratory and field contaminants, and their detection did not follow a consistent pattern. It is suspected that detection of acetone, 2-butanone, and carbon disulfide is not indicative of groundwater conditions at the site.
4. The analytical results for wells analyzed for PAHs were organized into three groups: not detected, detected above solubility limits, and detected below solubility limits. PAHs were not detected in eight monitoring wells. PAHs were detected above solubility limits in samples from 13 wells, indicating the potential presence of free product and so the results are not considered indicative of dissolved concentrations. Some of the wells containing PAHs above their solubility limits were observed to contain free product. PAHs were detected below solubility limits in samples from six wells and the concentrations ranged up to 62 ug/L, and for those parameters with Groundwater Remediation Objectives, the Class 1 values were not exceeded.
5. Other SVOCs were initially detected in samples collected from the MW-series of wells, but the SVOCs were not detected in subsequent sampling events except for a few instances where the SVOCs were not initially detected but detected in a subsequent sampling event.
6. Pesticides were analyzed for in samples from the nine MW-series wells. Pesticides were initially detected in samples from monitoring wells MW-2, MW-5 and MW-6, but the pesticides were not detected in samples from these same wells in the subsequent sampling event. Pesticides were initially not detected in samples from monitoring wells MW-3, MW-4 and MW-7, but were detected in the subsequent sampling event. The initial sample from well MW-8 contained three pesticides, but the subsequent sample only contained one pesticide. Pesticides were not detected in the samples from the only round of samples collected from wells MW-9 and MW-10, but these results are not considered reliable due to sample filtration. Class I Groundwater Objectives were exceeded for a number of results, but the Class II Groundwater Remediation Objective was only exceeded once for the January 1989 sample from well MW-4 for lindane.

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7. PCBs were not detected in samples collected from 26 wells. PCBs were detected in samples collected from well GM-5 (1 ug/L) and MW-9 (58 ug/L). Free product was present in these wells at the time of sampling and so the results are not considered representative of dissolved phase concentrations..
8. Much of the metals data are considered unusable because the samples were not filtered prior to analysis. The only useable data were samples analyzed for lead in May 1989, February 1993 and November/December 1993. There are no useable results for monitoring wells MW-3 and MW-4. Lead was not detected (<0.003 mg/L) in the samples collected from wells GM-1, GM-2, GM-3, GM-4, GM-5, GM-6, MW-5, MW-6, or MW-8 during the November/December 1993 sampling event. Lead was detected in the most recent samples collected from wells MW-2, MW-7, and MW-9 above the Class II Groundwater Remediation Objectives. Lead was detected in the most recent sample from well MW-10 above the Class I but not Class II Groundwater Remediation Objective.
9. Cyanide was detected in only two samples (MW-2 at 0.06 mg/L (May 1988) and MW-7 at 0.08 mg/L (May 1988)). Cyanide was not detected in the January 1989 samples from wells MW-2 and MW-7.
10. Samples from seven wells were analyzed in January 1989 for phenols. Phenols were only detected in one sample (MW-2) at 0.09 mg/L, and there is no Groundwater Remediation Objective for phenols.

Recommendations

1. Because the chlorinated VOCs initially detected were not detected in more recent sampling events, no additional sampling and analysis for chlorinated compounds is recommended.
2. BTEX compounds were only detected in samples in the last round of samples collected from three wells, MW-2, MW-3 and MW-9. MW-2 and MW-3 are not associated with the Sylvan Slough Site, and MW-9, which is located within the Sylvan Slough Site has been plugged and abandoned. Because BTEX compounds are often associated with hydrocarbon fuels, no additional testing for BTEX is recommended within the Sylvan Slough Site. It is recommended that samples be collected from wells MW-2 and MW-3 and analyzed for BTEX to determine if BTEX is still present at these locations.
3. PAHs are typically associated with hydrocarbon fuels such as diesel fuel, and so it is not recommended that samples be collected from the Sylvan Slough Site for

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PAH analysis until the free-phase removal is complete. Samples from wells potentially outside of the Sylvan Slough Site, such as MW-2, MW-3, MW-4, MW-7 and MW-8, did not contain PAHs at levels exceeding Class I Groundwater Remediation Objectives, so no additional sampling is recommended at this time.

4. Samples from wells MW-3, MW-4, MW-7 and MW-8 indicated the presence of pesticides, and it is recommended that samples be collected from each of these wells to be analyzed for pesticides.
5. PCBs were only detected in samples collected from two wells, GM-5 and MW-9. These wells have been plugged and abandoned and so cannot be resampled.
6. The available data indicates the potential for lead to be present in the groundwater near MW-2, MW-7, MW-9 and MW-10. Well MW-9 has been plugged and abandoned, and so cannot be resampled. It is recommended that samples be collected from wells MW-2, MW -7 and MW-10 for lead analysis.

1.0 Introduction

ARCADIS Geraghty & Miller was retained by Navistar International Transportation Corp. (Navistar) and Burlington Northern and Santa Fe Railway Co. Railroad (BNSF) to review the available groundwater quality data from the Navistar, BNSF, Quad City Industrial Center (QCIC), and Iowa Interstate Railroad, Ltd. (IIR) properties (Sylvan Slough Removal Action Site) located in Rock Island, Illinois and summarize the data with respect to the presence of hazardous substances. Figure 1 depicts the location of the Sylvan Slough Removal Action Site and shows the approximate property boundaries at the site. The groundwater data evaluation was performed at the request of the United States Environmental Protection Agency (USEPA) to evaluate potential impacts to the Sylvan Slough, located directly north of the site, from hazardous substances previously detected in groundwater samples at the site.

The objectives of the groundwater quality data evaluation were to summarize the describe the trends and distribution of hazardous substances in groundwater, and to identify gaps, if any, in the site characterization data.

As part of the data evaluation, ARCADIS Geraghty & Miller reviewed information contained in the following reports:

- Pilko & Associates, Inc., July 1988. "Soils and Geohydrologic Investigation of the Farmall Facility, Rock Island, Illinois."
- Pilko & Associates, Inc., June 1989. "Soils and Groundwater Investigation for Farmall, Rock Island, Illinois."
- Pilko & Associates, Inc., August 1989. "Soils and Geohydrologic Investigation - Farmall, Rock Island, Illinois."
- Pilko & Associates, Inc., May 1992. "Groundwater Resampling - Farmall Facility, Rock Island, Illinois."
- Pilko & Associates, Inc., March 1993. "Groundwater Resampling - Farmall Facility, Rock Island, Illinois."
- ARCADIS Geraghty & Miller, Inc., March 1994. "Initial Site Investigation, Navistar/Burlington Northern Railroad Properties, Rock Island, Illinois."

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- ARCADIS Geraghty & Miller, Inc., September 1994. "Phase II Site Investigation Report, Navistar International Transportation Corp./Burlington Northern Railroad/Iowa Interstate Railroad Properties, Rock Island, Illinois."
- ARCADIS Geraghty & Miller, Inc., September 1995. "Aquifer Pumping Test Report, Sylvan Slough Project Site, Rock Island, Illinois."

Groundwater sampling activities were conducted at the Sylvan Slough Site during the time period from May 1988 to July 1994. Analytical parameters lists utilized included volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), metals, phenols, cyanide, oil and grease, and total petroleum hydrocarbons (TPH).

A summary of the site-specific hydrogeologic conditions based on previous investigations conducted at the site is presented in Section 2.0 (Site Background). In addition, Section 2.0 provides a summary of the groundwater investigation activities conducted at the site. The groundwater quality data for each group of constituents monitored at the site are presented in Section 3.0 (Groundwater Quality) and conclusions and recommendations are presented in Section 4.0 (Conclusions and Recommendations).

2.0 Site Background

The Sylvan Slough Removal Action Site (site) is located along the Sylvan Slough between the Iowa Interstate Railroad bridge and the former International Harvester Farmall (Farmall) manufacturing facility, currently known as the Quad City Industrial Center (QCIC) in the City of Rock Island, Rock Island County, Illinois. The Sylvan Slough is a portion of the Mississippi River that flows between the Sylvan Slough Removal Action Site and the Rock Island Arsenal. The Iowa Interstate Railroad is located to the south of the Navistar/BNSF properties. The southern bank of the slough forms the northern boundary of the Navistar/BNSF properties. The bank of the slough is steep sided and approximately 20 feet high.

Free-phase oil intermittently seeps from the base of the bank into the slough where it forms an iridescent film on the water. The geological and hydrogeological conditions which allow seepage to occur are discussed below.

2.1 Geology

The site is underlain by fill in the area immediately adjacent to the river. The fill is composed of fine- to medium-grained foundry sands, with lesser amounts of crushed glass, slag and timber as observed in samples collected from soil borings completed at the site. The latter materials are estimated to comprise less than 5% of the total composition of the Upper Fill Unit. The Upper Fill Unit is up to 26-feet thick adjacent to the slough (i.e., north) but becomes thinner to the south.

The Upper Fill Unit is locally underlain adjacent to the slough by a stiff to dense, olive green, silty clay unit (i.e., the Confining Clay). Abundant rootlets have been observed in samples collected from the top of the Confining Clay. The Confining Clay ranges from one foot to greater than five feet in thickness in the zone adjacent to the river, and thins to the south. The Confining Clay appears to extend into the slough to form the river bed close to the bank. The Confining Clay pinches out (i.e., absent) to the south and does not appear to extend beneath the Iowa Interstate property. The upper and lower surfaces of the clay are irregular.

The Lower Sand and Gravel Unit underlies the Confining Clay, and contains sand and gravel with shell fragments, and pebbles of limestone, sandstone, shale and various igneous rocks. The Lower Sand and Gravel Unit is alluvial in origin and frequently contains discrete horizons of larger-sized material surrounded by finer-grained, mixed sand and gravel deposits. The Lower Sand and Gravel Unit is thickest adjacent to the slough and becomes thinner to the south and appears to eventually pinch out (absent) to the south.

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The Lower Sand and Gravel Unit is underlain by shale bedrock. Shale bedrock was found at approximately 530 feet MSL adjacent to the slough, at about 556 feet MSL beneath the Iowa Interstate property, and the shale was found at about 561 ft MSL south of the Iowa Interstate property. The shale slopes upward away from the slough beneath the unconsolidated materials.

2.2 Hydrogeology

Groundwater level measurements indicate that approximately three feet of the Upper Fill Unit above the Confining Clay are water saturated. The saturated thickness of the unconsolidated materials in the unconfined zone increases to 7 to 10 ft south of where the Confining Clay is absent. Horizontal hydraulic gradients in the Upper Fill Unit are generally from south to north towards the slough. The fill is unconfined with an estimated hydraulic conductivity of 20 ft/day. Hydraulic heads in the Upper Fill Unit are greater than those in the Lower Sand and Gravel Unit resulting in a potential for groundwater flow from the Upper Fill Unit to the Lower Sand and Gravel Unit. However, the hydraulic conductivity of the clay unit is low, so the groundwater flux between the two units is expected to be small (ARCADIS Geraghty & Miller, 1995).

The Lower Sand and Gravel Unit below the Clay Confining Unit is fully saturated based upon the water level data from the site wells. Hydraulic heads are above the base of the overlying clay, reflecting the confined nature of the Lower Sand and Gravel Unit. It is possible that small portions of the Lower Sand and Gravel may become unsaturated at low stages in the river.

Horizontal hydraulic gradients in the Lower Sand and Gravel Unit are generally from south to north towards the slough. Hydraulic gradients in the Lower Sand and Gravel Unit are an order of magnitude lower than in the Upper Fill Unit. The overall direction of groundwater flow is from south to north towards the slough, but short term gradient reversals are possible at times of high river stage. The hydraulic conductivity of the Lower Sand and Gravel Unit is estimated to be 450 ft/day (ARCADIS Geraghty & Miller, 1995).

The hydraulic conductivity of the Clay Confining Unit was not measured directly, although indirectly a vertical permeability of 0.03 ft/day was determined from pumping test data. The clay unit is regarded as a confining unit where present, because it impedes flow between the Upper Fill and the Lower Sand and Gravel Unit (ARCADIS Geraghty & Miller, 1995).

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2.3 Groundwater Investigation Activities

In May 1988, Pilko & Associates, Inc. (Pilko) conducted a soil and groundwater investigation at the Site. Seven shallow monitoring wells (MW-2 to MW-8) were installed during the investigation and groundwater samples were collected for laboratory analysis from each monitoring well in May 1988 and January 1989. Well MW-1 was reportedly not installed because the borehole was dry. In May 1989, two additional monitoring wells (MW-9 and MW-10) were installed by Pilko and groundwater samples were collected from the three existing wells and the two additional wells in May/June 1989 (Table 1). Also, the water supply well at the former Releasing Office was plugged and abandoned by Pilko in May 1989. The monitoring well locations are shown on Figure 2.

Additional groundwater sampling events were conducted by Pilko in March 1992 and February 1993. Monitoring wells MW-2 and MW-4 to MW-10 were sampled in March 1992 and monitoring wells MW-2, and MW-5 to MW-10 were sampled in February 1993 (Table 1). According to Pilko (1992, 1993), well MW-3 was reportedly destroyed after the May/June 1989 sampling event and well MW-4 was destroyed after the March 1992 sampling event preventing the collection of additional samples from these wells.

Prior to collection of groundwater samples by Pilko, three volumes of groundwater were removed from each monitoring well or the well was bailed dry. Samples obtained in May 1988 through May 1989 were collected using a Teflon® bailer after the wells were allowed to recover. The type of bailer used for sample collection was not specified by Pilko for the March 1992 and February 1993 sampling events. Groundwater samples were placed in pre-cleaned containers, preserved on ice, and transported to the laboratory using standard chain-of-custody procedures. Based on a review of the Pilko reports and chain-of-custody documents, it was determined that all groundwater samples collected in May 1989 were filtered in the laboratory prior to analysis, samples collected for SVOC analysis in March 1992 were filtered in the laboratory prior to analysis, and samples collected in February 1993 for TPH, SVOC, and lead analysis were filtered in the laboratory prior to analysis.

Six monitoring wells (GM-1 to GM-6) were installed on the BNSF property as part of ARCADIS Geraghty & Miller's field investigation conducted in November 1993. In November/December, 1993, groundwater samples were collected from monitoring wells GM-1 to GM-6 and MW-5, MW-6 and MW-8. In July 1994, ARCADIS Geraghty & Miller installed 13 additional monitoring wells (GM-7 to GM-19). Groundwater samples were collected from Monitoring wells GM-1 to GM-19, MW-5,

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MW-6, MW-8 and MW-9 in July 1994 (Table 1). The monitoring well locations are shown on Figure 2.

Prior to groundwater sampling in November/December 1993 and July 1994, ARCADIS Geraghty & Miller used an oil/water interface probe to record the water level in each well and determine whether measurable free product was present. Prior to collection of groundwater samples, approximately three well volumes of groundwater were purged from each monitoring well using a dedicated, disposable bailer. The sample containers provided by the laboratory were filled at each well location directly from the disposable bailer. Groundwater samples were preserved as required and transported on ice to the laboratory using standard chain-of-custody procedures. Samples collected for lead analysis in November/December 1993 were filtered in the field.

Table 1 presents a summary of the wells sampled during each sampling event and the analytical parameters used for each sampling event.

3.0 Groundwater Quality

A discussion of the groundwater-quality data is provided in the sections below. The discussion includes the current distribution of chemical compounds in groundwater and the trends, if any, in the compound concentrations over time.

3.1 Volatile Organic Compounds

Groundwater samples from monitoring wells were analyzed for VOCs during the sampling events conducted in May 1988, January 1989, May/June 1989, March 1992, February 1993, November/December 1993, and July 1994 (Table 1). A summary of the groundwater VOC data is provided in Table 2. Table 2 only includes the results for VOCs which were detected at least once in groundwater samples collected at the Site. The VOCs detected are grouped for discussion as follows: chlorinated compounds, BTEX compounds, and other VOCs (acetone, 2-butanone, and carbon disulfide).

3.1.1 Chlorinated Compounds

Chlorinated VOCs were not detected in samples collected from the following 23 monitoring wells: GM-1, GM-2, GM-3, GM-4, GM-5, GM-6, GM-7, GM-8, GM-9, GM-10, GM-11, GM-12, GM-13, GM-14, GM-15, GM-16, GM-17, GM-18, GM-19, MW-3, MW-7, MW-9 and MW-10.

Chlorinated VOCs were only detected in at least one sample from the 5 monitoring wells MW-2, MW-4, MW-5, MW-6 and MW-8. The chlorinated VOCs detected include 1,2-dichloroethane (1,2-DCA), 1,1,1-trichloroethane (1,1,1-TCA), 1,1,2-trichloroethane (1,1,2-TCA), and trans-1,2-dichloroethene (1,2-DCE). As discussed below, the chlorinated VOCs were initially detected in samples from these wells, but were not detected in samples collected during more recent sampling events, indicating that the chlorinated VOCs are no longer present at these locations.

1,2-DCA (30 micrograms per liter [$\mu\text{g/L}$]) was the only chlorinated VOC detected in the May 1988 sample collected from monitoring well MW-2. Monitoring well MW-2 is located east of the site at the eastern end of the Navistar property (Figure 2). In the January 1989 sample from well MW-2, 1,2-DCA and 1,1,2-TCA were detected at concentrations of 94 $\mu\text{g/L}$ and 30 $\mu\text{g/L}$, respectively. No chlorinated VOCs were detected in well MW-2 during the May/June 1989 sampling event, however, the results for this event are not considered reliable due to filtration of the sample prior to analysis. No chlorinated VOCs were detected in samples from monitoring well MW-2 collected subsequently in March 1992 and February 1993, indicating that chlorinated VOCs were no longer present at this location.

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1,1,1-TCA (8 µg/L) was the only chlorinated VOC detected in the May 1988 sample collected from monitoring well MW-4. Monitoring well MW-4 is located on the Navistar property, east of the site (Figure 2). No chlorinated VOCs were detected in the samples collected from well MW-4 during the subsequent January 1989 and March 1992 sampling events, indicating that chlorinated VOCs were no longer present at this location.

1,1,1-TCA (350 µg/L) was the only chlorinated VOC detected in the sample collected from monitoring well MW-5 in May 1988. Monitoring well MW-5 is located on the QCIC property, east of the BNSF property (Figure 2). 1,1,2-TCA (8 µg/L) was the only chlorinated VOC detected in the January 1989 sample collected from well MW-5. No chlorinated VOCs were detected in the sample collected from well MW-5 during the May/June 1989 sampling event, however, the results for this event are not considered reliable due to filtration of the sample prior to analysis. Chlorinated VOCs were not detected in samples from monitoring well MW-5 during the subsequent March 1992, February 1993, November/December 1993, or July 1994 sampling events, indicating that chlorinated VOCs were no longer present at this location.

1,1,1-TCA (250 µg/L) was the only chlorinated VOC detected in the sample collected from monitoring well MW-6 in May 1988. Monitoring well MW-6 is located within the site (Figure 2). 1,1,1-TCA (460 µg/L) and trans-1,2 DCE (60 µg/L) were the only two chlorinated VOCs detected in the January 1989 sample from MW-6. No chlorinated VOCs were detected in well MW-6 during the May/June 1989 sampling event, however, the results for this event are not considered reliable due to filtration of the sample prior to analysis. Chlorinated VOCs were not detected in the samples from monitoring well MW-6 collected subsequently during the March 1992, February 1993, November/December 1993, and July 1994 sampling events, indicating that chlorinated VOCs were no longer present at this location.

No chlorinated VOCs were detected in the May 1988 sample collected from monitoring well MW-8. Monitoring well MW-8 is located in the western portion of the Navistar property (Figure 2). 1,1,1-TCA (5 µg/L) was the only chlorinated VOC detected in the January 1989 sample from well MW-8. No chlorinated VOCs were detected in samples from well MW-8 collected subsequently during the March 1992, February 1993, November/December 1993, and July 1994 sampling events, indicating that chlorinated VOCs were no longer present at this location.

3.1.2 BTEX Compounds

Benzene, toluene, ethyl benzene, and xylenes (BTEX), were not detected in samples collected from the following 20 monitoring wells during the sampling period (May

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1988 to July 1994): GM-1, GM-2, GM-3, GM-4, GM-6, GM-7, GM-8, GM-9, GM-10, GM-11, GM-12, GM-13, GM-14, GM-15, GM-16, GM-17, GM-18, GM-19, MW-4 and MW-10 (Figure 2).

BTEX was detected in at least one sample from monitoring wells GM-5, MW-2, MW-3, MW-5, MW-6, MW-7, MW-8 and MW-9 (Figure 2). As discussed below, BTEX was initially detected in samples from monitoring wells GM-5, MW-5, MW-6, MW-7 and MW-8, but was not detected in samples collected during subsequent sampling events indicating that BTEX was no longer present at these locations. BTEX compounds were detected in the last round of samples collected from monitoring wells MW-2, MW-3 and MW-9.

Benzene (3 µg/L) was the only BTEX compound detected in the December 1993 sample collected from monitoring well GM-5, but this detection of benzene was not confirmed in the December 1993 quality control (QC) duplicate sample collected from well GM-5. No BTEX was detected in the July 1994 sample collected from monitoring well GM-5. Because no BTEX compounds were detected in the July 1994 samples from well GM-5, and the detection of benzene in the December 1993 sample was not confirmed in the QC samples, this indicates that BTEX was likely not present at this location.

BTEX was detected in samples collected from monitoring well MW-2 at concentrations ranging from below the detection limit (BDL) to 6,400 µg/L benzene, BDL to 2,300 µg/L toluene, BDL to 650 µg/L ethyl benzene, and BDL to 2,050 µg/L xylenes during the sampling period from May 1988 to February 1993. Maximum concentrations of BTEX was detected in the May/June 1989 sample collected from MW-2. However, the results for this event are not considered reliable due to filtration of the sample prior to analysis. No BTEX was detected in the subsequent March 1992 sample collected from MW-2. BTEX was detected in the February 1993 sample at concentrations of 747 µg/L benzene, 537 µg/L ethyl benzene, 60 µg/L toluene, and 658 µg/L xylenes. The February 1993 samples results for MW-2 indicate an exceedance of the Class I and Class II Groundwater Remediation Objectives for benzene (5 µg/L and 25 µg/L, respectively), but the results did not exceed the Class I or II Objectives for ethylbenzene (700 µg/L and 1,000 µg/L, respectively), toluene (1,000 µg/L and 2,500 µg/L, respectively), or xylenes (10,000 µg/L and 10,000 µg/L, respectively) (Appendix B).

No BTEX was detected in the May 1988 sample collected from monitoring well MW-3. The only BTEX compounds detected in the January 1989 sampling event were benzene (11 µg/L) and toluene (9 µg/L). Monitoring well MW-3 was not sampled during the May/June 1989 sampling event. According to Pilko (May 1992),

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well MW-3 was reportedly destroyed after the May/June 1989 sampling event preventing the collection of additional samples. The January 1989 sample results for MW-3 indicate an exceedance of the Class I Objectives for benzene, but the results did not exceed the Class II Objectives for benzene, and did not exceed the Class I or II Objectives for toluene (Appendix B).

No BTEX was detected in the May 1988 sample collected from monitoring well MW-5. The only BTEX compound detected in the January 1989 sample from well MW-5 was benzene (1 µg/L). No BTEX was detected in the sample collected from well MW-5 during the May/June 1989 sampling event. However, the results for this event are not considered reliable due to filtration of the sample prior to analysis. BTEX was not detected samples from well MW-5 during the subsequent March 1992, February 1993, November/December 1993, and July 1994 sampling events, indicating that BTEX compounds were no longer present at this location.

No BTEX was detected in the May 1988 sample collected from monitoring well MW-6. The only BTEX compound detected in the January 1989 sample from well MW-6 was benzene (4 µg/L). No BTEX was detected in the sample collected from well MW-6 during the May/June 1989 sampling event. However, the results for this event are not considered reliable due to filtration of the sample prior to analysis. No BTEX was detected in the samples collected from well MW-6 during the subsequent March 1992, February 1993, November/December 1993, and July 1994 sampling events, indicating that BTEX was no longer present at this location.

No BTEX was detected in the May 1988 sample collected from monitoring well MW-7. The only BTEX compound detected in the January 1989 sample from well MW-7 was benzene (4 µg/L). No BTEX was detected in the samples collected from well MW-7 during the subsequent March 1992 or February 1993 sampling events, indicating that BTEX was no longer present at this location.

No BTEX was detected in the May 1988 sample collected from monitoring well MW-8. The only BTEX compound detected in the January 1989 sample from well MW-8 was benzene (3 µg/L). No BTEX was detected in the samples collected from well MW-8 during the subsequent March 1992, February 1993, November/December 1993, and July 1994 sampling events, indicating that BTEX was no longer present at this location.

No BTEX was detected in the May 1989 sample collected from monitoring well MW-9. However, the results for this event are not considered reliable due to filtration of the sample prior to analysis. BTEX was not detected in the March 1992 sample collected from well MW-9. Benzene and xylenes were the only BTEX compounds

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detected in the February 1993 sample (11.4 µg/L and 28.3 µg/L, respectively) and the July 1994 sample (6 µg/L and 7 µg/L, respectively) collected from well MW-9. The July 1994 sample results for MW-9 indicated an exceedance of the Class I Objective for benzene, but the results did not exceed the Class II Objective for benzene, and did not exceed the Class I or II Objectives for xylenes (Appendix B). Free product was detected in monitoring well MW-9 during the March 1992, February 1993, November/December 1993, and July 1994 sampling events. Therefore, the analytical results for these events indicate that the compounds are present, but may not be representative of dissolved-phase concentrations in groundwater.

3.1.3 Other VOCs

Other VOCs were detected in groundwater samples including acetone, carbon disulfide, and 2-butanone. The detection of these compounds did not follow a consistent pattern, and these compounds are typical laboratory contaminants. Acetone, a common laboratory contaminant, was detected in samples collected from four monitoring wells (GM-1, GM-3, GM-4, and MW-6) during the November/December 1993 sampling event at concentrations ranging from 13 to 17 µg/L. Acetone was also detected samples collected from four monitoring wells (GM-9, GM-11, GM-17 and MW-9) during the July 1994 sampling event at concentrations ranging from 30 to 42 µg/L. None of the acetone results exceeded the Class I Groundwater Remediation Objectives of 700 µg/L (Appendix B). Analytical results for field blanks and equipment blanks collected during the July 1994 sampling event indicate that acetone may also be a field artifact. Acetone was detected in one of the three field blanks at a concentration of 28 µg/L and two of the three equipment blanks at concentrations of 52 and 47 µg/L.

Carbon disulfide was detected in three monitoring wells (GM-1, MW-4 and MW-8) at concentrations ranging from 3 µg/L to 5,200 µg/L. During the July 1994 sampling event, carbon disulfide was detected in monitoring well GM-1 at a concentration of 5,200 µg/L, although it was not detected during the previous sampling event conducted in November 1993. The July 1994 sample result exceeded the Class I and Class II Objectives for carbon disulfide (700 µg/L and 3,500 µg/L, respectively) (Appendix B). Free product was detected in monitoring well GM-1 during the July 1994 sampling event and, therefore, the analytical results may not be representative of dissolved-phase concentrations in groundwater.

Carbon disulfide was detected in monitoring well MW-4 at a concentration of 3 µg/L during the May 1988 sampling event. Carbon disulfide was not detected in well MW-

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4 during the subsequent sampling events conducted in January 1989 and March 1992, indicating that it was no longer present at this location.

Carbon disulfide was detected in monitoring well MW-8 during the July 1994 sampling event at a concentration of 6 µg/L, but was not detected during the five previous sampling events (May 1988, January 1989, March 1992, February 1993, and November/December 1993). The July 1994 sample result did not exceed the Class I Objective for carbon disulfide (Appendix B). Although carbon disulfide is a common laboratory artifact, it was not detected in laboratory blanks associated with the May 1988 or July 1994 sampling events. It is possible that carbon disulfide may be produced as a result of biodegradation in an anaerobic environment (under reducing conditions).

2-Butanone (also known as methyl ethyl ketone [MEK]), a common laboratory contaminant, was detected only during the January 1989 sampling event samples collected from monitoring wells MW-2, MW-6 and MW-8 at concentrations ranging from 5 to 12 µg/L. 2-Butanone was not detected in samples from these monitoring wells collected during subsequent sampling events conducted in March 1992, February 1993, November/December 1993, and July 1994, indicating that this compound was no longer present at these locations.

3.2 Semivolatile Organic Compounds

Groundwater samples from monitoring wells were analyzed for SVOCs during the May 1988, January 1989, May/June 1989, March 1992, and February 1993 sampling events. In addition, groundwater samples were analyzed for a limited group of SVOCs, polynuclear aromatic hydrocarbons (PAHs), during the November/December 1993 and July 1994 sampling events. Groundwater samples collected for SVOC/PAH analysis during the May/June 1989, March 1992, and February 1993 sampling events were filtered prior to laboratory analysis (Pilkco and Associates, Inc. 1989b, 1992, 1993).

A discussion of the analytical results for PAHs and other SVOCs is provided in the sections below.

3.2.1 Polynuclear Aromatic Hydrocarbons (PAHs)

A summary of the analytical results for PAHs is presented in Table 3. The discussion below organizes monitoring well results into groups where: PAHs were not detected, where PAHs were detected at concentrations above their solubility limits, and where PAHs were detected at concentrations below their solubility limits. PAHs were not detected in samples collected from the following eight monitoring wells: GM-14, GM-15, GM-16, GM-17, GM-18, MW-3, MW-4 and MW-10. PAHs with concentrations below their solubility limits were detected in at least one sample from the following seven monitoring wells: GM-7, GM-8, GM-11, GM-13, MW-2, MW-7 and MW-8. PAHs were detected at concentrations above their solubility limits in at least one sample from the following thirteen wells: GM-1, GM-2, GM-3, GM-4, GM-5, GM-6, GM-9, GM-10, GM-12, GM-19, MW-5, MW-6 and MW-9.

PAHs were detected at concentrations above their solubility limits in at least one sample from the following thirteen wells: GM-1, GM-2, GM-3, GM-4, GM-5, GM-6, GM-9, GM-10, GM-11, GM-19, MW-5, MW-6 and MW-9 (Table 3). The detection of PAHs at concentrations above their solubility limits indicates the potential presence of free-product, rather than the presence of PAHs dissolved in groundwater at the reported concentrations. PAH concentration results may be biased due to the presence of free product in the well, which may have been introduced into the sample container during collection of the sample. Therefore, the results from these wells will not be considered indicative of the dissolved phase concentration in groundwater, but indicative of the presence of free-product. Wells GM-1, GM-2, GM-3, GM-4, GM-6, GM-9, GM-10, GM-12, MW-6 and MW-9 are located in areas believed to have free-product present. GM-19S has had free-product present in the well, but the free-product is not believed to be associated with the free-product at the site, and does not appear to result in a sheen on the surface water of Sylvan Slough. Free-product had not been observed in well MW-5 and the PAH concentrations were below their solubility limits in the last sample collected in July 1994.

PAHs with concentrations below their solubility limits were detected in at least one sample from the following seven monitoring wells: GM-7, GM-8, GM-11, GM-13, MW-2, MW-7 and MW-8. Monitoring well GM-7 was sampled one time (July 1994) and one constituent was detected at a concentration less than 1 µg/L (benzo(g,h,i)perylene at 0.22 µg/L). No Groundwater Remediation Objective is available for this compound. GM-8 was sampled one time (July 1994) and six PAHs were detected at concentrations ranging from 1.1 µg/L to 21 µg/L. Five of the six compounds detected have Groundwater Objectives and none of the detected compounds concentrations exceeded the Class I Objectives (Appendix B). GM-11

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was sampled one time (July 1994) and three PAHs were detected at concentrations ranging from 11 µg/L to 14 µg/L. Two of the three compounds detected have Groundwater Objectives, and none of the detected compounds concentrations exceeded the Class I Objectives (Appendix B). Monitoring well GM-13 was sampled one time (July 1994) and two PAHs, fluorene and phenanthrene, were detected at concentrations of 5.9 µg/L and 6.4 µg/L, respectively. Only fluorene has a Groundwater Objective, and the July 1994 result for well GM-13 did not exceed the Class I Objective (280 µg/L) (Appendix B).

MW-2 was sampled three times with the last event in February 1993. In May 1988, five PAHs were detected at concentrations ranging from 11 µg/L to 62 µg/L. In the January 1989 sampling event, only three PAHs were detected and the concentration range decreased to 13 µg/L to 23 µg/L. Two of the three compounds detected have Groundwater Objectives, and none of the detected compounds concentrations exceeded the Class I Objectives (Appendix B). Only one PAH (naphthalene at 21.6 µg/L) was detected in the February 1993 sample, but these results are not considered reliable due to the filtration of the sample. MW-2 is located at the eastern boundary of the Navistar property (Figure 2), more than 2,500 feet from the Site.

MW-7 was sampled four times with the last sampling event conducted in February 1993. In May 1988, one PAH was detected at 14 µg/L and no PAHs were detected in the January 1989 sampling event, indicating that PAHs were no longer present at that time. PAHs were not detected in the March 1992 or February 1993 sampling events, but these results are not considered reliable due to filtration of the sample.

MW-8 was sampled five times with the last sampling event conducted in July 1994. PAHs were not detected in the May 1988, January 1989, February 1993, or July 1994 samples from well MW-8. The February 1993 results are not considered reliable due to the filtration of the sample. Two PAHs were detected in the December 1993 sampling event at concentrations ranging from 6 µg/L to 23 µg/L. These two PAHs (1-methylnaphthalene and 2-methylnaphthalene) were not included in the July 1994 PAH parameter list. There are no Groundwater Objectives for these compounds (Appendix B).

3.2.2 Other Semivolatile Organic Compounds SVOCs

A summary of the analytical results for SVOCs other than PAHs is presented in Table 4. SVOCs other than PAHs were not detected in monitoring wells MW-9 and MW-10, but each of the samples analyzed were filtered prior to analysis and are not considered reliable. SVOCs other than PAHs were detected in samples from the following monitoring wells: MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8. The SVOCs listed in Table 4 were not included in the parameter list used for the GM-series of wells.

Bis (2-ethylhexyl) phthalate was only detected during the May 1988 sampling event in samples from wells MW-2, MW-3, MW-4, MW-7 and MW-8 at concentrations ranging from 164 µg/L to 567 µg/L. Bis (2-ethylhexyl) phthalate was not present in the laboratory blank associated with the May 1988 sampling event. Bis (2-ethylhexyl) phthalate was not detected in samples collected during the January 1989 sampling event, which included wells MW-2, MW-3, MW-4, MW-7 and MW-8, indicating this compound is no longer present at these locations. Bis (2-ethylhexyl) phthalate was not detected in samples collected from monitoring wells MW-2 (February 1993), MW-4 (March 1992), MW-7 (March 1992 and February 1993), and MW-8 (February 1993) during subsequent sampling events, but the results are not considered reliable due to filtration of the samples.

During the May 1988 sampling event, the following SVOCs were detected in monitoring well MW-5: 2,4-dinitrotoluene, 2,6-dinitrotoluene, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-chlorophenyl-phenylether, 4-nitroaniline, 4-nitrophenol, benzoic acid, bis (2-chloroethoxy)methane, isophorone and n-nitrosodiphenylamine. These compounds were not detected during subsequent sampling events conducted in January 1989, May/June 1989, March 1992, and February 1993. The May/June 1989, March 1992, and February 1993 results are not considered representative due to filtration of the samples. The January 1989 results indicate that these SVOCs were no longer present at Monitoring well MW-5.

During the May 1988 sampling event, bis (2-chloroethyl) ether (262 µg/L) and phenol (20 µg/L) were detected in monitoring well MW-6. However, bis (2-chloroethyl) ether and phenol were not detected during the following sampling event conducted in January 1989. During the subsequent sampling events conducted in May/June 1989 and February 1993, bis (2-chloroethyl) ether was not detected (and phenol was not included in the parameter list), but these results are not considered representative due to filtration of the sample. The January 1989 sampling results indicate that bis (2-chloroethyl) ether and phenol were no longer present at monitoring well MW-6.

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The following compounds were detected in the sample collected from monitoring well MW-6 during the January 1989 but not the May 1988 sampling event: 2,4-dinitrotoluene (66 µg/L), 4-chlorophenyl-phenylether (15 µg/L), isophorone (230 µg/L), and n-nitrosodiphenylamine (190 µg/L). These compounds were not detected during the later sampling events conducted in May/June 1989 and February 1993, but these results are not considered representative due to filtration of the sample. The MW-6, January 1989 results for 2, 4-dinitrotoluene and n-nitrosodiphenylamine exceed the Class I Groundwater Objectives (Appendix B). There is no Groundwater Objective for 4-chlorophenylether. The MW-6, January 1989 result for isophorene did not exceed the Class I Objective.

3.3 Pesticides

Groundwater samples were analyzed for pesticides during the sampling events conducted in May 1988, January 1989, and May 1989 from selected MW-series wells. Pesticides were not analyzed for in samples from the GM-series of wells. The May 1989 results are not considered reliable due to sample filtration. A summary of the analytical results for pesticides is provided in Table 5.

Pesticides were not detected in May 1989 groundwater samples collected from monitoring wells MW-9 and MW-10. The May 1989 results are not considered reliable due to sample filtration, and the May 1989 samples were the only round of samples collected from wells MW-9 and MW-10. Pesticides were detected in samples from monitoring wells MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8. Samples collected from wells MW-2, MW-5 and MW-6 in May 1988 indicated the presence of pesticides, but these compounds were not detected in January 1989 samples collected from these wells, indicating these compounds were no longer present at this location.

The May 1988 samples from wells MW-3, MW-4 and MW-7 did not contain pesticides, but pesticides were detected in the January 1989 samples. p,p'-DDT (0.4 µg/L) was detected in the January 1989 sample from well MW-3 exceeding the Class I but not Class II Groundwater Remediation Objective. p,p'-DDT (0.39 µg/L), and lindane (1.2 µg/L) were detected in the January 1989 sample from well MW-4, but were not detected in the May 1988 sample from well MW-4. The MW-4, January 1989 result for p,p'-DDT exceeded the Class I, but not Class II Groundwater Objective. The MW-4, January 1989 result for lindane exceeded the Class II Objective (Appendix B). Aldrin (0.05 µg/L), lindane (0.11 µg/L), and p,p'-DDT (0.17 µg/L) were detected in the January 1989 sample from well MW-7, but were not detected in the May 1988 sample from well MW-7. The MW-7, January 1989 results for aldrin

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and p,p'-DDT exceeded the Class I but not the Class II Objective. The MW-7, January 1989 result for lindane did not exceed the Class I Objective.

The initial sample from well MW-8 contained three pesticides, but a subsequent sample contained only one pesticide at a lower concentration. Alpha-BHC (0.25 µg/L), lindane (5.92 µg/L), and p,p'-DDT (2.14 µg/L) were detected in monitoring well MW-8 during the May 1988 sampling event, but only p,p'-DDT (0.24 µg/L) was detected during the following event conducted in January 1989. The MW-8, January 1989 result for p,p'-DDT exceeded the Class I, but not the Class II Groundwater Objective.

3.4 Polychlorinated Biphenyls (PCBs)

Groundwater samples were analyzed for PCBs during the sampling events conducted in May 1988, January 1989, May 1989, November/December 1993, and July 1994. A summary of the analytical results for PCBs is provided in Table 5. PCBs were not detected in samples collected from 26 monitoring wells: GM-1, GM-2, GM-3, GM-4, GM-6, GM-7, GM-8, GM-9, GM-10, GM-11, GM-12, GM-13, GM-14, GM-15, GM-16, GM-17, GM-18, GM-19, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, or MW-10.

In December 1993, PCB 1254 was detected at a concentration of 1 µg/L in monitoring well GM-5. During the July 1994 sampling event, PCB 1254 was detected at a concentration of 3.3 µg/L in the sample from well GM-5. In addition, in July 1994, PCB 1254 was detected in monitoring well MW-9 at a concentration of 58 µg/L. During each of these sampling events, free product was observed in monitoring wells GM-5 and MW-9 therefore, the results are not considered representative of dissolved-phase concentrations in the groundwater. In general, PCBs have low solubilities in water and would have a tendency to partition to the free-product phase. The PCB results may be biased due to the presence of free product because product may have been introduced into the sample containers during collection of the groundwater samples.

3.5 Metals

Groundwater samples were analyzed for priority pollutant metals during the May 1988 sampling event (MW-2 to MW-8), for selected metals including cadmium, nickel, lead, and zinc during the January 1989 sampling event (MW-2 to MW-8), and for lead only during the May 1989 (MW-2, MW-5, MW-6, MW-9 and MW-10), March 1992 (MW-2 and MW-4 to MW-10), February 1993 (MW-2 and MW-5 to MW-10), and

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November/December 1993 sampling events (GM-1 to GM-7 and MW-5, MW-6 and MW-8). A summary of the analytical results for metals is presented in Table 6.

For the May/June 1989, February 1993, and November/December 1993 sampling events, samples analyzed for metals (i.e., lead) were filtered prior to laboratory analysis. Based on a review of the August 1989 report prepared by Pilko, it does not appear that metals samples were filtered prior to analysis during the May 1988, January 1989 and March 1992 sampling events. Therefore, these data are not considered representative of the concentrations of dissolved metals because sediment that could affect the sample results was not filtered out prior to acidic preservation of the sample for transport to the laboratory. The metals in the sediment may have been dissolved into the sample by the acid used to preserve the sample.

Monitoring wells GM-1, GM-2, GM-3, GM-4, GM-5, GM-6 were sampled once in November 1993 and lead was not detected. Lead was detected twice in the samples collected from well MW-2 at 0.01 mg/L (May 1989) to 0.160 mg/L (February 1993). The February 1993 result exceeded the Class I and II Groundwater Objectives for lead (0.075 mg/L and 0.1 mg/L, respectively (Appendix B)). There are no useable results from monitoring wells MW-3 and MW-4. Lead was detected twice in groundwater samples collected from monitoring well MW-5 (May 1989 and Feb. 1993), but lead was not detected in the December 1993 sample from monitoring well MW-5, indicating that lead was no longer present at that time. Lead was detected twice in groundwater samples collected from monitoring well MW-6 (May 1989 and Feb. 1993), but lead was not detected in the December 1993 sample from monitoring well MW-6, indicating that lead was no longer present at that time. The one useable result from monitoring well MW-7 (Feb. 1993) indicated the presence of lead at 0.190 mg/L, which exceeded both the Class I and II Objectives for lead. Lead was detected in the February 1993 sample from monitoring well MW-8, but was not detected in the December 1993 sample, indicating that lead was no longer present at that time. Lead was detected in the May 1989 sample (0.210 mg/L) and the February 1993 sample (0.240 mg/L) from monitoring well MW-9, which exceeded both the Class I and II Objectives for lead. Lead was detected in the May 1989 (0.150 mg/L) and the February 1993 sample (0.090 mg/L) from monitoring well MW-10. The February 1993 result for MW-10 exceeded the Class I but not Class II Objective for lead.

The useable lead results indicate that lead may be present in the groundwater near monitoring wells MW-2, MW-7, MW-9 and MW-10.

3.6 Other Compounds

A summary of the analytical data for oil and grease, cyanide, and TPH analyses is presented in Table 6. The May 1989 sample from well MW-2 was the only sample analyzed for oil and grease and it was detected at 1.3 mg/L. Samples from wells MW-2 to MW-8 were analyzed for cyanide in May 1988 and January 1989. Cyanide was detected in only two samples, MW-2 at 0.06 mg/L (May 1988) and MW-7 at 0.08 mg/L (May 1988), which did not exceed the Class I Objective for cyanide (0.2 mg/L) (Appendix B). Cyanide was not detected in the January 1989 samples from wells MW-2 and MW-7.

Samples were analyzed for TPH in January 1989 (MW-2 to MW-8), May 1989 (MW-5, MW-6, MW-9 and MW-10), March 1992 (MW-2, MW-4, MW-6, MW-8 and MW-10), and February 1993 (MW-2 and MW-5 to MW-10). TPH concentrations for the May 1989 and February 1993 sampling events are not considered reliable because these samples were filtered prior to analysis. The following discusses the January 1989 and March 1992 sample results.

TPH concentrations in monitoring well MW-2 ranged from 2.0 mg/L to 16.7 mg/L for the March 1992 and January 1989 sampling events, respectively. TPH was not detected in the January 1989 sample collected from well MW-3. No March 1992 sample was collected. TPH concentrations in monitoring well MW-4 ranged from 1.0 mg/L to 1.3 mg/L for the March 1992 and January 1989 sampling events, respectively. TPH was detected at a concentration of 9.7 mg/L in the January 1989 sample was collected from well MW-5 (No March 1992 sample collected). In the January 1989 and March 1992 samples collected from monitoring well MW-6, TPH was detected at concentrations of 75.0 mg/L and 2,300 mg/L, respectively. TPH was not detected in the January 1989 sample collected from well MW-7 (No March 1992 sample was collected). In monitoring well MW-8, TPH was present at concentrations ranging from <1.0 mg/L (March 1992) to 4.0 mg/L (January 1989). Samples were not collected for TPH analysis from well MW-9 in January 1989 or March 1992. TPH was detected at a concentration of 2,100 mg/L in the March 1992 sample collected from monitoring well MW-10 (No January 1989 sample collected).

Samples from collected in January 1989 wells MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8 were analyzed for phenols. Phenols were only detected in one sample (MW-2) at 0.09 g/L. There are no Groundwater Objectives for TPH or phenols.

4.0 Conclusions and Recommendations

The following are the conclusions and recommendations based on the data contained in this report.

4.1 Conclusions

1. Chlorinated VOCs were not detected in samples collected from 23 monitoring well locations. Chlorinated VOCs were initially detected in samples collected from five monitoring wells: MW-2, MW-4, MW-5, MW-6 and MW-8. Chlorinated VOCs were not detected in the more recent sampling events for each well, indicating that the chlorinated compounds were no longer present at these well locations.
2. BTEX compounds were not detected in samples collected from 20 monitoring well locations. BTEX was initially detected in samples collected from monitoring wells GM-5, MW-5, MW-6, MW-7 and MW-8, but BTEX was not detected in samples collected from these wells during more recent sampling events, indicating that BTEX was no longer present at these locations. BTEX was detected in the last round of samples collected from wells MW-2 and MW-3, and the Class I Groundwater Remediation Objective for benzene was exceeded in the samples from each well. These wells are located on the Navistar property east of the Sylvan Slough site and north of the QCIC. BTEX was detected in samples from MW-9, but the results may not be representative due to the presence of free product in the well.
3. Other VOCs were detected, but the compounds are typical laboratory and field contaminants, and their detection did not follow a consistent pattern. It is suspected that detection of acetone, 2-butanone, and carbon disulfide is not indicative of groundwater conditions at the site.
4. The analytical results for wells analyzed for PAHs were organized into three groups: not detected, detected above solubility limits, and detected below solubility limits. PAHs were not detected in eight monitoring wells. PAHs were detected above solubility limits in samples from 13 wells, indicating the potential presence of free product and so the results are not considered indicative of dissolved concentrations. Some of the wells containing PAHs above their solubility limits were observed to contain free product. PAHs were detected below solubility limits in samples from six wells and the concentrations ranged up to 62 ug/L, and for those parameters with Groundwater Remediation Objectives, the Class 1 values were not exceeded.

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5. Other SVOCs were initially detected in samples collected from the MW-series of wells, but the SVOCs were not detected in subsequent sampling events except for a few instances where the SVOCs were not initially detected but detected in a subsequent sampling event.
6. Pesticides were analyzed for in samples from the nine MW-series wells. Pesticides were initially detected in samples from monitoring wells MW-2, MW-5 and MW-6, but the pesticides were not detected in samples from these same wells in the subsequent sampling event. Pesticides were initially not detected in samples from monitoring wells MW-3, MW-4 and MW-7, but were detected in the subsequent sampling event. The initial sample from well MW-8 contained three pesticides, but the subsequent sample only contained one pesticide. Pesticides were not detected in the samples from the only round of samples collected from wells MW-9 and MW-10, but these results are not considered reliable due to sample filtration. Class I Groundwater Objectives were exceeded for a number of results, but the Class II Groundwater Remediation Objective was only exceeded once for the January 1989 sample from well MW-4 for lindane.
7. PCBs were not detected in samples collected from 26 wells. PCBs were detected in samples collected from well GM-5 (1 ug/L) and MW-9 (58 ug/L). Free product was present in these wells at the time of sampling and so the results are not considered representative of dissolved phase concentrations..
8. Much of the metals data are considered unusable because the samples were not filtered prior to analysis. The only useable data were samples analyzed for lead in May 1989, February 1993 and November/December 1993. There are no useable results for monitoring wells MW-3 and MW-4. Lead was not detected (<0.003 mg/L) in the samples collected from wells GM-1, GM-2, GM-3, GM-4, GM-5, GM-6, MW-5, MW-6, or MW-8 during the November/December 1993 sampling event. Lead was detected in the most recent samples collected from wells MW-2, MW-7, and MW-9 above the Class II Groundwater Remediation Objectives. Lead was detected in the most recent sample from well MW-10 above the Class I but not Class II Groundwater Remediation Objective.
9. Cyanide was detected in only two samples (MW-2 at 0.06 mg/L (May 1988) and MW-7 at 0.08 mg/L (May 1988)). Cyanide was not detected in the January 1989 samples from wells MW-2 and MW-7.

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10. Samples from seven wells were analyzed in January 1989 for phenols. Phenols were only detected in one sample (MW-2) at 0.09 mg/L, and there is no Groundwater Remediation Objective for phenols.

4.2 Recommendations

1. Because the chlorinated VOCs initially detected were not detected in more recent sampling events, no additional sampling and analysis for chlorinated compounds is recommended.
2. BTEX compounds were only detected in samples in the last round of samples collected from three wells, MW-2, MW-3 and MW-9. MW-2 and MW-3 are not associated with the Sylvan Slough Site, and MW-9, which is located within the Sylvan Slough Site has been plugged and abandoned. Because BTEX compounds are often associated with hydrocarbon fuels, no additional testing for BTEX is recommended within the Sylvan Slough Site. It is recommended that samples be collected from wells MW-2 and MW-3 and analyzed for BTEX to determine if BTEX is still present at these locations.
3. PAHs are typically associated with hydrocarbon fuels such as diesel fuel, and so it is not recommended that samples be collected from the Sylvan Slough Site for PAH analysis until the free-phase removal is complete. Samples from wells potentially outside of the Sylvan Slough Site, such as MW-2, MW-3, MW-4, MW-7 and MW-8, did not contain PAHs at levels exceeding Class I Groundwater Remediation Objectives, so no additional sampling is recommended at this time.
4. Samples from wells MW-3, MW-4, MW-7 and MW-8 indicated the presence of pesticides, and it is recommended that samples be collected from each of these wells to be analyzed for pesticides.
5. PCBs were only detected in samples collected from two wells, GM-5 and MW-9. These wells have been plugged and abandoned and so cannot be resampled.
6. The available data indicates the potential for lead to be present in the groundwater near MW-2, MW-7, MW-9 and MW-10. Well MW-9 has been plugged and abandoned, and so cannot be resampled. It is recommended that samples be collected from wells MW-2, MW -7 and MW-10 for lead analysis.

Groundwater Quality Assessment Report

Sylvan Slough Removal
Action Site

5.0 References

- Pilko & Associates, Inc., July 1988. "Soils and Geohydrologic Investigation of the Farmall Facility, Rock Island, Illinois."
- Pilko & Associates, Inc., June 1989. "Soils and Groundwater Investigation for Farmall, Rock Island, Illinois."
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- Pilko & Associates, Inc., May 1992. "Groundwater Resampling - Farmall Facility, Rock Island, Illinois."
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- ARCADIS Geraghty & Miller, Inc., March 1994. "Initial Site Investigation, Navistar/Burlington Northern Railroad Properties, Rock Island, Illinois."
- ARCADIS Geraghty & Miller, Inc., September 1994. "Phase II Site Investigation Report, Navistar International Transportation Corporation/Burlington Northern Railroad/Iowa Interstate Railroad Properties, Rock Island, Illinois."
- ARCADIS Geraghty & Miller, Inc., September 1995. "Aquifer Pumping Test Report, Sylvan Slough Project Site, Rock Island, Illinois."
- 35 IAC Part 742, Appendix B, Table E



Table 1. Summary of Sampling Dates, Monitoring Wells Sampled, and Laboratory Analyses,
Sylvan Slough Removal Action Site, Rock Island, Illinois.

Sampling Date	Monitoring Well	Analyte Group										
		VOCs	SVOCs	PAHs	Pesticides	PCBs	Metals	Lead	Cyanide	TPH	Phenols	Oil and Grease
5/10/88 and 5/11/88	MW-02	X	X	X	X	X	X		X			
	MW-03	X	X	X	X	X	X		X			
	MW-04	X	X	X	X	X	X		X			
	MW-05	X	X	X	X	X	X		X			
	MW-06	X	X	X	X	X	X		X			
	MW-07	X	X	X	X	X	X		X			
	MW-08	X	X	X	X	X	X		X			
1/89	MW-02	X	X	X	X	X	X		X	X	X	
	MW-03	X	X	X	X	X	X		X	X	X	
	MW-04	X	X	X	X	X	X		X	X	X	
	MW-05	X	X	X	X	X	X		X	X	X	
	MW-06	X	X	X	X	X	X		X	X	X	
	MW-07	X	X	X	X	X	X		X	X	X	
	MW-08	X	X	X	X	X	X		X	X	X	
5/89	MW-02	X						X				X
	MW-05	X	X	X	X	X		X		X		
	MW-06	X	X	X	X	X		X		X		
	MW-09	X	X	X	X	X		X		X		
	MW-10	X	X	X	X	X		X		X		
3/10/92	MW-02	X						X		X		
	MW-04	X						X		X		
	MW-05	X	X	X				X				
	MW-06	X						X		X		
	MW-07	X	X	X				X				
	MW-08	X						X		X		
	MW-09	X	X	X				X				
	MW-10	X						X		X		

Notes:

VOCs Volatile organic compounds

SVOCs Semivolatile organic compounds

PAHs Polynuclear aromatic hydrocarbons

PCBs Polychlorinated biphenyls

TPH Total petroleum hydrocarbons

X Sample analyzed for the indicated parameter

Table 1. Summary of Sampling Dates, Monitoring Wells Sampled, and Laboratory Analyses,
Sylvan Slough Removal Action Site, Rock Island, Illinois.

Sampling Date	Monitoring Well	Analyte Group										
		VOCs	SVOCs	PAHs	Pesticides	PCBs	Metals	Lead	Cyanide	TPH	Phenols	Oil and Grease
2/11/93	MW-02	X	X	X				X		X		
	MW-05	X	X	X				X		X		
	MW-06	X	X	X				X		X		
	MW-07	X	X	X				X		X		
	MW-08	X	X	X				X		X		
	MW-09	X	X	X				X		X		
	MW-10	X	X	X				X		X		
11/30/93 and 12/01/93	GM-01	X		X		X		X				
	GM-02	X		X		X		X				
	GM-03	X		X		X		X				
	GM-04	X		X		X		X				
	GM-05	X		X		X		X				
	GM-06	X		X		X		X				
	MW-05	X		X		X		X				
	MW-06	X		X		X		X				
7/21/94 and 7/22/94	MW-08	X		X		X		X				
	GM-01	X		X		X						
	GM-02	X		X		X						
	GM-03	X		X		X						
	GM-04	X		X		X						
	GM-05	X		X		X						
	GM-06	X		X		X						
	GM-07	X		X		X						
	GM-08	X		X		X						
	GM-09	X		X		X						
	GM-10	X		X		X						
	GM-11	X		X		X						

Notes:

VOCs Volatile organic compounds

SVOCs Semivolatile organic compounds

PAHs Polynuclear aromatic hydrocarbons

PCBs Polychlorinated biphenyls

TPH Total petroleum hydrocarbons

X Sample analyzed for the indicated parameter

Table 1. Summary of Sampling Dates, Monitoring Wells Sampled, and Laboratory Analyses,
Sylvan Slough Removal Action Site, Rock Island, Illinois.

Sampling Date	Monitoring Well	Analyte Group										
		VOCs	SVOCs	PAHs	Pesticides	PCBs	Metals	Lead	Cyanide	TPH	Phenols	Oil and Grease
7/21/94	GM-12	X		X		X						
and 7/22/94	GM-13	X		X		X						
(continued)	GM-14	X		X		X						
	GM-15	X		X		X						
	GM-16	X		X		X						
	GM-17	X		X		X						
	GM-18	X		X		X						
	GM-19	X		X		X						
	MW-05	X		X		X						
	MW-06	X		X		X						
	MW-08	X		X		X						
	MW-09	X		X		X						

Notes:

VOCs Volatile organic compounds

SVOCs Semivolatile organic compounds

PAHs Polynuclear aromatic hydrocarbons

PCBs Polychlorinated biphenyls

TPH Total petroleum hydrocarbons

X Sample analyzed for the indicated parameter

g:\aproject\navistar\CI10299.010\data\sampling.xls

Table 2. Summary of Groundwater-Quality Data for Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	GM-0	(1,2)	GM-01 (2)	GM-01	(3)	GM-02	(2)	GM-02 (3)	GM-03	(2)	GM-03	(3)	GM-04	(2)	GM-04	(3)	GM-05	(2)	GM-05 (3)
Sample Date	12/01/93		11/30/93	07/21/94		11/30/93		7/21/94	11/30/93		07/21/94		11/30/93		07/21/94		12/01/93		07/22/94
<i>Volatile Organic Compounds (ug/L)</i>																			
1,1,1-Trichloroethane	< 5	< 5	< 250	< 5	< 250	< 5	< 250	< 5	< 250	< 5	< 250	< 5	< 5	< 5	< 5	< 5	< 250	< 250	< 250
1,1,2-Trichloroethane	< 2	< 2	< 250	< 2	< 250	< 2	< 250	< 2	< 250	< 2	< 250	< 2	< 5	< 2	< 250	< 2	< 250	< 250	< 250
1,2-Dichloroethane	< 2	< 2	< 250	< 2	< 250	< 2	< 250	< 2	< 250	< 2	< 250	< 2	< 5	< 2	< 250	< 2	< 250	< 250	< 250
Trans-1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	< 3	< 3	< 500	< 3	< 500	< 3	< 500	< 3	< 500	< 3	< 500	< 3	< 10	< 3	< 500	< 3	< 500	< 500	< 500
Acetone	< 10	17	< 1000	< 10	< 1000	14	< 1000	13	< 20	< 10	< 1000	13	< 20	< 10	< 1000	< 10	< 1000	< 1000	< 1000
Carbon Disulfide	< 1	< 1	5200	< 1	< 250	< 1	< 250	< 1	< 250	< 1	< 250	< 1	< 5	< 1	< 250	< 1	< 250	< 250	< 250
Benzene	< 1	< 1	< 250	< 1	< 250	< 1	< 250	< 1	< 250	< 1	< 250	< 1	< 5	< 3	< 250	< 3	< 250	< 250	< 250
Ethylbenzene	< 1	< 1	< 250	< 1	< 250	< 1	< 250	< 1	< 250	< 1	< 250	< 1	< 5	< 1	< 250	< 1	< 250	< 250	< 250
Toluene	< 5	< 5	< 250	< 5	< 250	< 5	< 250	< 5	< 250	< 5	< 250	< 5	< 5	< 5	< 250	< 5	< 250	< 250	< 250
Xylenes (Total)	< 2	< 2	< 250	< 2	< 250	< 2	< 250	< 2	< 250	< 2	< 250	< 2	< 5	< 2	< 250	< 2	< 250	< 250	< 250

Notes:

- (1) GM-0 is a duplicate sample collected at well GM-5
- (2) Geraghty & Miller, March 1994
- (3) Geraghty & Miller, September 1994
- (4) GM-101 is a duplicate sample collected at well GM-12
- (5) Pilko, July 1988
- (6) Pilko, June 1989
- (7) Pilko, May 1992
- (8) Pilko, March 1993
- (9) GM-99 is a duplicate sample collected at well GM-15
- (10) MW-88 is a duplicate sample collected at well MW-8
- (11) Sample filtered prior to analysis
- NA Not analyzed
- ug/L Micrograms per liter (parts per billion)

Table 2. Summary of Groundwater-Quality Data for Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	GM-06	(2) GM-06 (3)	GM-07	(3)	GM-08	(3) GM-09 (3)	GM-10	(3) GM-101 (3,4)	GM-11	(3) GM-12	(3) GM-13 (3)	GM-14 (3)
Sample Date	12/01/93	07/22/94	07/21/94		07/21/94	7/23/94	07/23/94	07/22/94	07/22/94	07/22/94	07/22/94	07/22/94
<i>Volatile Organic Compounds (ug/L)</i>												
1,1,1-Trichloroethane	< 5	< 250	< 5	<	5	< 5	< 250	< 250	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	< 2	< 250	< 5	<	5	< 5	< 250	< 250	< 5	< 5	< 5	< 5
1,2-Dichloroethane	< 2	< 250	< 5	<	5	< 5	< 250	< 250	< 5	< 5	< 5	< 5
Trans-1,2-dichloroethene	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	< 3	< 500	< 10	<	10	< 10	< 500	< 500	< 10	< 10	< 10	< 10
Acetone	< 10	< 1000	< 20	<	20	38	< 1000	< 1000	30	< 20	< 20	< 20
Carbon Disulfide	< 1	< 250	< 5	<	5	< 5	< 250	< 250	< 5	< 5	< 5	< 5
Benzene	< 1	< 250	< 5	<	5	< 5	< 250	< 250	< 5	< 5	< 5	< 5
Ethylbenzene	< 1	< 250	< 5	<	5	< 5	< 250	< 250	< 5	< 5	< 5	< 5
Toluene	< 5	< 250	< 5	<	5	< 5	< 250	< 250	< 5	< 5	< 5	< 5
Xylenes (Total)	< 2	< 250	< 5	<	5	< 5	< 250	< 250	< 5	< 5	< 5	< 5

Notes:

- (1) GM-0 is a duplicate sample collected at well GM-5.
- (2) Geraghty & Miller, March 1994
- (3) Geraghty & Miller, September 1994
- (4) GM-101 is a duplicate sample collected at well GM-12
- (5) Pilko, July 1988
- (6) Pilko, June 1989
- (7) Pilko, May 1992
- (8) Pilko, March 1993
- (9) GM-99 is a duplicate sample collected at well GM-15
- (10) MW-88 is a duplicate sample collected at well MW-8
- (11) Sample filtered prior to analysis
- NA Not analyzed
- ug/L Micrograms per liter (parts per billion)

Table 2. Summary of Groundwater-Quality Data for Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	GM-15	(3) GM-16	(3) GM-17	(3) GM-18	(3) GM-19	(3) GM-99	(3,9) MW-02	(5) MW-02	(6) MW-02	(6)(11) MW-02	(7) MW-02	(8)
Sample Date	07/22/94	07/22/94	07/22/94	07/22/94	7/21/94	07/22/94	5/11/88	1/89	5/89	03/10/92	02/11/93	
<i>Volatile Organic Compounds (ug/L)</i>												
1,1,1-Trichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 10	
1,1,2-Trichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	30	< 500	< 5	< 10	
1,2-Dichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	30	94	< 500	< 5	< 10	
Trans-1,2-dichloroethene	NA	NA	NA	NA	NA	NA	< 5	< 5	< 500	NA	NA	
2-Butanone (MEK)	< 10	< 10	< 10	< 10	< 10	< 10	< 5	12	NA	< 50	< 100	
Acetone	< 20	< 20	42	< 20	< 20	< 20	< 10	< 10	NA	< 100	< 200	
Carbon Disulfide	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA	< 5	< 10	
Benzene	< 5	< 5	< 5	< 5	< 5	< 5	1150	2500	6400	< 5	747	
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	140	650	< 5	537	
Toluene	< 5	< 5	< 5	< 5	< 5	< 5	53	1100	2300	< 5	60	
Xylenes (Total)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	2050	< 5	658	

Notes:

- (1) GM-0 is a duplicate sample collected at well GM-5.
 (2) Geraghty & Miller, March 1994
 (3) Geraghty & Miller, September 1994
 (4) GM-101 is a duplicate sample collected at well GM-12
 (5) Pilko, July 1988
 (6) Pilko, June 1989
 (7) Pilko, May 1992
 (8) Pilko, March 1993
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 NA Not analyzed
 ug/L Micrograms per liter (parts per billion)

Table 2. Summary of Groundwater-Quality Data for Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	MW-03	(5) MW-03	(6) MW-04	(5) MW-04	(6) MW-04	(7) MW-05	(5) MW-05	(6) MW-05	(6)(11) MW-05	(7) MW-05	(8) MW-05	(2)
Sample Date	05/11/88	1/89	05/11/88	1/89	3/10/92	05/11/88	1/89	5/89	03/10/92	02/11/93	12/01/93	
<i>Volatile Organic Compounds (ug/L)</i>												
1,1,1-Trichloroethane	< 5	< 5	8	< 5	< 5	350	< 5	< 10	< 5	< 10	< 5	
1,1,2-Trichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	8	< 10	< 5	< 10	< 2	
1,2-Dichloroethane	< 3	< 3	< 3	< 3	< 5	< 3	< 3	< 3	< 5	< 10	< 2	
Trans-1,2-dichloroethene	< 5	< 5	< 5	< 5	NA	< 5	< 5	< 10	NA	NA	NA	
2-Butanone (MEK)	< 5	< 5	< 5	< 5	< 50	< 5	< 5	NA	< 50	< 100	< 3	
Acetone	< 10	< 10	< 10	< 10	< 100	< 10	< 10	NA	< 100	< 200	< 10	
Carbon Disulfide	< 5	< 5	3	< 5	< 5	< 5	< 5	NA	< 5	< 10	< 1	
Benzene	< 1	11	< 1	< 1	< 5	< 1	1	< 1	< 5	< 10	< 1	
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 10	< 1	
Toluene	< 5	9	< 5	< 5	< 5	< 5	< 5	< 10	< 5	< 10	< 5	
Xylenes (Total)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA	< 5	< 10	< 2	

Notes:

(1) GM-0 is a duplicate sample collected at well GM-5.

(2) Geraghty & Miller, March 1994

(3) Geraghty & Miller, September 1994

(4) GM-101 is a duplicate sample collected at well GM-12

(5) Pilko, July 1988

(6) Pilko, June 1989

(7) Pilko, May 1992

(8) Pilko, March 1993

(9) GM-99 is a duplicate sample collected at well GM-15

(10) MW-88 is a duplicate sample collected at well MW-8

(11) Sample filtered prior to analysis

NA Not analyzed

ug/L Micrograms per liter (parts per billion)

Table 2. Summary of Groundwater-Quality Data for Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Information Sample Data	MW-05 07/20/94	(3) MW-06(5) 05/11/88	MW-06 1/89	(6) MW-06 5/89	(6)(11) MW-06 (7) 3/10/92	MW-06 (7) 02/11/93	(8) MW-06 12/01/93	(2) MW-06 07/21/94	(3) MW-07 05/10/88	(5) MW-07 1/89	(6) MW-07 (7) 03/10/92
<i>Volatile Organic Compounds (ug/L)</i>											
1,1,1-Trichloroethane	< 5	250	460	< 10	< 5	< 10	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	< 5	< 5	< 5	< 10	< 5	< 10	< 2	< 5	< 5	< 5	< 5
1,2-Dichloroethane	< 5	< 3	< 3	< 3	< 5	< 10	< 2	< 5	< 3	< 3	< 5
Trans-1,2-dichloroethene	NA	< 5	60	< 10	NA	NA	NA	NA	< 5	< 5	NA
2-Butanone (MEK)	< 10	< 5	6	NA	< 50	< 100	< 3	< 10	< 5	< 5	< 50
Acetone	< 20	< 10	< 10	NA	< 100	< 200	17	< 20	< 10	< 10	< 100
Carbon Disulfide	< 5	< 5	< 5	NA	< 5	< 10	< 1	< 5	< 5	< 5	< 5
Benzene	< 5	< 1	4	< 1	< 5	< 10	< 1	< 5	< 1	4	< 5
Ethylbenzene	< 5	< 5	< 5	< 10	< 5	< 10	< 1	< 5	< 5	< 5	< 5
Toluene	< 5	< 5	< 5	< 10	< 5	< 10	< 5	< 5	< 5	< 5	< 5
Xylenes (Total)	< 5	< 5	< 5	NA	< 5	< 10	< 2	< 5	< 5	< 5	< 5

Notes:

- (1) GM-0 is a duplicate sample collected at well GM-5.
 (2) Geraghty & Miller, March 1994
 (3) Geraghty & Miller, September 1994
 (4) GM-101 is a duplicate sample collected at well GM-12
 (5) Pilko, July 1988
 (6) Pilko, June 1989
 (7) Pilko, May 1992
 (8) Pilko, March 1993
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 NA Not analyzed
 ug/L Micrograms per liter (parts per billion)

Table 2. Summary of Groundwater-Quality Data for Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	MW-07	(8) MW-08(5)	MW-08	(6)	MW-08	(7) MW-08	(8)	MW-08	(2)	MW-08	(3)	MW-09	(6)(11)	MW-09	(7)	MW-09	(8)	MW-09	(3)
Sample Date	02/11/93	05/10/88	1/89		03/10/92	2/11/93	12/01/93		07/20/94		5/89		03/10/92		02/11/93		07/20/94		
<i>Volatile Organic Compounds (ug/L)</i>																			
1,1,1-Trichloroethane	< 5	< 5	5	<	5	< 5	< 5	<	5	< 10	< 5	< 10	< 5	< 10	< 5	< 10	< 5		
1,1,2-Trichloroethane	< 5	< 5	< 5	<	5	< 5	< 2	<	5	< 10	< 5	< 10	< 5	< 10	< 5	< 10	< 5		
1,2-Dichloroethane	< 5	< 3	< 3	<	5	< 5	< 2	<	5	< 3	< 5	< 10	< 5	< 10	< 5	< 10	< 5		
Trans-1,2-dichloroethene	NA	< 5	< 5		NA	NA	NA		NA	< 10		NA		NA		NA		NA	
2-Butanone (MEK)	< 50	< 5	5	<	50	< 50	< 3	<	10	NA	< 50	< 100	< 10	< 100	< 100	< 100	< 10		
Acetone	< 100	< 10	< 10	<	100	< 100	< 10	<	20	NA	< 100	< 200	< 10	< 200	< 100	< 200	< 10		
Carbon Disulfide	< 5	< 5	< 5	<	5	< 5	< 1		6	NA	< 5	< 10	< 5	< 10	< 5	< 10	< 5		
Benzene	< 5	< 1	3	<	5	< 5	< 1	<	5	< 1	< 5	< 10	< 5	< 10	< 5	< 10	< 5		
Ethylbenzene	< 5	< 5	< 5	<	5	< 5	< 1	<	5	< 10	< 5	< 10	< 5	< 10	< 5	< 10	< 5		
Toluene	< 5	< 5	< 5	<	5	< 5	< 5	<	5	< 10	< 5	< 10	< 5	< 10	< 5	< 10	< 5		
Xylenes (Total)	< 5	< 5	< 5	<	5	< 5	< 2	<	5	NA	< 5	< 10	< 5	< 10	< 5	< 10	< 5		

Notes:

- (1) GM-0 is a duplicate sample collected at well GM-5.
- (2) Geraghty & Miller, March 1994
- (3) Geraghty & Miller, September 1994
- (4) GM-101 is a duplicate sample collected at well GM-12
- (5) Pilko, July 1988
- (6) Pilko, June 1989
- (7) Pilko, May 1992
- (8) Pilko, March 1993
- (9) GM-99 is a duplicate sample collected at well GM-15
- (10) MW-88 is a duplicate sample collected at well MW-8
- (11) Sample filtered prior to analysis
- NA Not analyzed
- ug/L. Micrograms per liter (parts per billion)

Table 2. Summary of Groundwater-Quality Data for Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Information	MW-10	6(11)	MW-10(7)	MW-10	(8)	MW-88	(3,10)	Equip Blank FB-02	(3)	Equip Blank FB-03	(3)	Equip Blank GW-01	(3)	Equip Blank GW-02	(3)	Equip Blank GW-03	(3)
Sample Date	5/89		03/10/92	02/11/93		07/20/94		7/21/94		07/22/94		07/21/94		07/23/94		07/23/94	
<i>Volatile Organic Compounds (ug/L)</i>																	
1,1,1-Trichloroethane	< 10	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	< 10	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	< 3	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Trans-1,2-dichloroethene	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	NA	< 50	< 100	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	NA	< 100	< 200	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Carbon Disulfide	NA	< 5	< 10	< 32	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Benzene	< 1	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	< 10	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Toluene	< 10	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Xylenes (Total)	NA	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5

Notes:

- (1) GM-0 is a duplicate sample collected at well GM-5.
 (2) Geraghty & Miller, March 1994
 (3) Geraghty & Miller, September 1994
 (4) GM-101 is a duplicate sample collected at well GM-12
 (5) Pilko, July 1988
 (6) Pilko, June 1989
 (7) Pilko, May 1992
 (8) Pilko, March 1993
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 NA Not analyzed
 ug/L Micrograms per liter (parts per billion)

Table 2. Summary of Groundwater-Quality Data for Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	Trip Blank	(2)	Trip Blank (3)	Equip. Blank	(6)(11)	Equip Blank FB-01	(3)
Sample Date	12/01/93		07/22/94	5/89		07/20/94	
<i>Volatile Organic Compounds (ug/L)</i>							
1,1,1-Trichloroethane	< 5	<	5	< 5.0	<	5	
1,1,2-Trichloroethane	< 2	<	5	< 5.0	<	5	
1,2-Dichloroethane	< 2	<	5	< 5.0	<	5	
Trans-1,2-dichloroethene	NA		NA	< 5.0		NA	
2-Butanone (MEK)	< 3	<	10	NA	<	10	
Acetone	< 10	<	20	NA	<	20	
Carbon Disulfide	< 1	<	5	NA	<	5	
Benzene	< 1	<	5	< 5.0	<	5	
Ethylbenzene	< 1	<	5	< 5.0	<	5	
Toluene	< 5	<	5	< 5.0	<	5	
Xylenes (Total)	< 2	<	5	NA	<	5	

Notes:

- (1) GM-0 is a duplicate sample collected at well GM-5.
- (2) Geraghty & Miller, March 1994
- (3) Geraghty & Miller, September 1994
- (4) GM-101 is a duplicate sample collected at well GM-12
- (5) Pilko, July 1988
- (6) Pilko, June 1989
- (7) Pilko, May 1992
- (8) Pilko, March 1993
- (9) GM-99 is a duplicate sample collected at well GM-15
- (10) MW-88 is a duplicate sample collected at well MW-8
- (11) Sample filtered prior to analysis
- NA Not analyzed
- ug/L Micrograms per liter (parts per billion)

Table 3. Summary of Groundwater-Quality Data for Polynuclear Aromatic Hydrocarbon Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well ID	Solubility	GM-0	GM-01	GM-01	GM-02	GM-02	GM-03	GM-03	GM-04
Sample Date	ug/L (12)	12/01/93	(1,7) 11/30/93	(1) 07/21/94	(2) 11/30/93	(1) 07/21/94	(2) 11/30/93	(1) 07/21/94	(2) 11/30/93 (1)
PAHs (ug/L)									
Naphthalene	31,000	< 1	< 100	8.2	< 1	< 0.36	< 1	< 18	< 1
1-Methylnaphthalene		540	2400	NA	390	NA	310	NA	550
Acenaphthene	4,240	< 1	< 100	230	< 1	33	< 1	3000	< 1
Acenaphthylene		310	1300	< 0.25	130	< 0.29	270	< 14	310
Anthracene	43.4	16	580	63	13	40	13	320	26
Benzo(a)anthracene	9.4	14	460	12	15	11	13	< 6.5	26
Benzo(a)pyrene	1.62	< 1	< 100	2.6	6	5.3	3	< 11	12
Benzo(b)fluoranthene	1.5	< 1	200	1.3	20	3.3	15	< 9	37
Benzo(g,h,i)perylene		< 1	< 100	0.3	1	1.0	< 1	< 9.5	2
Benzo(k)fluoranthene	0.8	< 1	180	1.4	7	2.6	5	< 8.5	17
Chrysene	1.6	9	260	19	23	25	11	400	46
Dibenzo(a,h)anthracene	2.49	< 1	< 100	< 0.085	18	< 0.09	< 1	< 4.5	< 1
Fluoranthene		< 1	2900	32	220	25	170	< 10	390
Fluorene	1980	170	820	530	79	490	89	7200	130
Indeno(1,2,3-cd)pyrene	0.022	< 1	< 100	1.6	1	3.2	< 1	< 10	2
Phenanthrene		77	1600	1300	73	1200	71	20000	130
Pyrene	135	130	2000	30	120	39	80	320	250
2-Methylnaphthalene		260	1100	NA	160	NA	230	NA	250

Notes:

- (1) Geraghty & Miller, March 1994
 (2) Geraghty & Miller, September 1994
 (3) Pilko, July 1988
 (4) Pilko, June 1989
 (5) Pilko, May 1992
 (6) Pilko, March 1993
 (7) GM-0 is a duplicate sample collected at well GM-5

- (8) GM-101 is a duplicate sample collected at well GM-12
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 (12) 35IAC742, Appendix C, Table E
 NA Not analyzed
 SVOCs Semivolatile organic compounds
 ug/L Micrograms per liter (parts per billion)

Table 3. Summary of Groundwater-Quality Data for Polynuclear Aromatic Hydrocarbon Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well ID	Solubility	GM-04	GM-05	GM-05	GM-06	GM-07	GM-08	GM-09	GM-10
Sample Date	ug/L (12)	07/21/94	(2) 12/01/93	(1) 07/22/94	(2) 12/01/93	(1) 07/21/94	(2) 07/21/94	(2) 07/23/94	(2) 07/23/94 (2)
PAHs (ug/L)									
Naphthalene	31,000	< 0.36	< 100	< 3.6	< 100	< 0.36	< 0.36	< 0.36	110
1-Methylnaphthalene		NA	3400	NA	2000	NA	NA	NA	NA
Acenaphthene	4,240	35	< 100	120	< 100	< 0.32	20	20	100
Acenaphthylene		< 0.29	730	< 2.9	480	< 0.29	< 0.29	< 0.29	< 0.29
Anthracene	43.4	8.9	160	40	120	< 0.27	1.3	5.7	49
Benzo(a)anthracene	9.4	< 1.4	170	8.2	110	< 0.13	< 0.13	0.42	< 0.13
Benzo(a)pyrene	1.62	0.73	< 100	< 2.3	< 100	< 0.23	< 0.23	< 0.23	< 0.23
Benzo(b)fluoranthene	1.5	0.33	300	< 1.8	210	< 0.18	< 0.18	< 0.18	5.6
Benzo(g,h,i)perylene		0.39	< 100	< 1.9	< 100	0.22	< 0.19	< 0.19	< 0.19
Benzo(k)fluoranthene	0.8	0.27	< 100	< 1.7	< 100	< 0.17	< 0.17	< 0.17	0.25
Chrysene	1.6	< 4.4	250	24	250	< 0.17	< 0.17	2.5	14
Dibenzo(a,h)anthracene	2.49	< 0.09	< 100	< .9	< 100	< 0.09	< 0.09	< 0.09	< 0.09
Fluoranthene		6.8	2400	22	1600	< 0.20	1.1	2.7	12
Fluorene	1980	99	840	290	540	< 0.23	21	50	300
Indeno(1,2,3-cd)pyrene	0.022	0.41	< 100	< 2	< 100	< 0.20	< 0.20	< 0.20	< 0.20
Phenanthrene		220	840	820	570	< 0.18	7.5	130	810
Pyrene	135	6.6	1800	17	1100	< 0.32	1.2	2.5	< 0.32
2-Methylnaphthalene		NA	1400	NA	850	NA	NA	NA	NA

Notes:

- (1) Geraghty & Miller, March 1994
 (2) Geraghty & Miller, September 1994
 (3) Pilko, July 1988
 (4) Pilko, June 1989
 (5) Pilko, May 1992
 (6) Pilko, March 1993
 (7) GM-0 is a duplicate sample collected at well GM-5

- (8) GM-101 is a duplicate sample collected at well GM-12
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 (12) 351AC742, Appendix C, Table E
 NA Not analyzed
 SVOCs Semivolatile organic compounds
 ug/L Micrograms per liter (parts per billion)

Table 3. Summary of Groundwater-Quality Data for Polynuclear Aromatic Hydrocarbon Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well ID	Solubility	GM-101	GM-11	GM-12	GM-13	GM-14	GM-15	GM-16	GM-17
Sample Date	ug/L (12)	07/22/94	(2,8) 07/22/94	(2) 07/22/94	(2) 07/22/94	(2) 07/22/94	(2) 07/22/94	(2) 07/22/94	(2) 07/22/94 (2)
PAHs (ug/L)									
Naphthalene	31,000	< 3.6	< 0.36	< 0.72	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	4,240	230	11	190	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32
Acenaphthylene		< 2.9	< 0.29	< 0.58	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29
Anthracene	43.4	48	< 0.27	20	< 0.27	< 0.27	< 0.27	< 0.27	< 0.27
Benzo(a)anthracene	9.4	7.6	< 0.13	< 0.26	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13
Benzo(a)pyrene	1.62	< 2.3	< 0.23	4.4	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23
Benzo(b)fluoranthene	1.5	< 1.8	< 0.18	< 0.36	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18
Benzo(g,h,i)perylene		< 1.9	< 0.19	< 0.38	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
Benzo(k)fluoranthene	0.8	< 1.7	< 0.17	0.27	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Chrysene	1.6	30	< 0.17	< 0.34	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Dibenzo(a,h)anthracene	2.49	< 0.9	< 0.09	< 0.18	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Fluoranthene		15	< 0.2	14	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Fluorene	1980	480	14	460	5.9	< 0.23	< 0.23	< 0.23	< 0.23
Indeno(1,2,3-cd)pyrene	0.022	< 2	< 0.2	< 0.4	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Phenanthrene		950	12	930	6.4	< 0.18	< 0.18	< 0.18	< 0.18
Pyrene	135	20	< 0.32	18	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- (1) Geraghty & Miller, March 1994
 (2) Geraghty & Miller, September 1994
 (3) Pilko, July 1988
 (4) Pilko, June 1989
 (5) Pilko, May 1992
 (6) Pilko, March 1993
 (7) GM-0 is a duplicate sample collected at well GM-5

- (8) GM-101 is a duplicate sample collected at well GM-12
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 (12) 35IAC742, Appendix C, Table E
 NA Not analyzed
 SVOCs Semivolatile organic compounds
 ug/L Micrograms per liter (parts per billion)

Table 3. Summary of Groundwater-Quality Data for Polynuclear Aromatic Hydrocarbon Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well ID	Solubility	GM-18	GM-19	GM-99	MW-02	MW-02	MW-02	MW-03	MW-03
Sample Date	ug/L (12)	07/22/94	(2) 07/21/94	(2) 07/22/94	(2,9) 5/11/88	(3) 1/89	(4) 02/11/93 (6)(11) 05/11/88	(3) 1/89	(4)
PAHs (ug/L)									
Naphthalene	31,000	< 0.36	< 0.36	< 0.36	< 10	< 10	21.6	< 10	< 10
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	4,240	< 0.32	< 0.32	< 0.32	14	< 10	< 10	< 10	< 10
Acenaphthylene		< 0.29	< 0.29	< 0.29	12	< 10	< 10	< 10	< 10
Anthracene	43.4	< 0.27	< 0.27	< 0.27	< 10	< 10	< 10	< 10	< 10
Benzo(a)anthracene	9.4	< 0.13	0.13	< 0.13	< 10	< 10	< 10	< 10	< 10
Benzo(a)pyrene	1.62	< 0.23	0.53	< 0.23	< 10	< 10	< 10	< 10	< 10
Benzo(b)fluoranthene	1.5	< 0.18	< 0.18	< 0.18	< 10	< 10	< 10	< 10	< 10
Benzo(g,h,i)perylene		< 0.19	0.89	< 0.19	< 10	< 10	< 10	< 10	< 10
Benzo(k)fluoranthene	0.8	< 0.17	< 0.17	< 0.17	< 10	< 10	< 10	< 10	< 10
Chrysene	1.6	< 0.17	0.36	< 0.17	< 10	< 10	< 10	< 10	< 10
Dibenzo(a,h)anthracene	2.49	< 0.09	< 0.09	< 0.09	< 10	< 10	< 10	< 10	< 10
Fluoranthene		< 0.20	0.29	< 0.20	62	22	< 10	< 10	< 10
Fluorene	1980	< 0.23	0.45	< 0.23	11	< 10	< 10	< 10	< 10
Indeno(1,2,3-cd)pyrene	0.022	< 0.20	1.1	< 0.20	< 10	< 10	< 10	< 10	< 10
Phenanthrene		< 0.18	0.22	< 0.18	62	13	< 10	< 10	< 10
Pyrene	135	< 0.32	0.95	< 0.32	< 10	23	< 10	< 10	< 10
2-Methylnapthalene		NA	NA	NA	< 10	< 10	< 10	< 10	< 10

Notes:

- (1) Geraghty & Miller, March 1994
 (2) Geraghty & Miller, September 1994
 (3) Pilko, July 1988
 (4) Pilko, June 1989
 (5) Pilko, May 1992
 (6) Pilko, March 1993
 (7) GM-0 is a duplicate sample collected at well GM-5

- (8) GM-101 is a duplicate sample collected at well GM-12
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 (12) 351AC742, Appendix C, Table E
 NA Not analyzed
 SVOCs Semivolatile organic compounds
 ug/L Micrograms per liter (parts per billion)

Table 3. Summary of Groundwater-Quality Data for Polynuclear Aromatic Hydrocarbon Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well ID	Solubility	MW-04	MW-04	MW-05	MW-05	MW-05	MW-05	MW-05	MW-05	MW-05
Sample Date	ug/L (12)	05/11/88	(3) 1/89	(4) 05/11/88	(3) 1/89	(4) 5/89	(4)(11) 03/10/92	(5)(11) 02/11/93	6)(11) 12/01/93	(1)
PAHs (ug/L)										
Naphthalene	31,000	< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	< 1	
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	530	
Acenaphthene	4,240	< 10	< 10	< 10	17	< 10	< 11.1	< 25	< 1	
Acenaphthylene		< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	120	
Anthracene	43.4	< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	8	
Benzo(a)anthracene	9.4	< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	10	
Benzo(a)pyrene	1.62	< 10	< 10	< 10	< 10	NA	< 11.1	< 25	6	
Benzo(b)fluoranthene	1.5	< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	< 1	
Benzo(g,h,i)perylene		< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	< 1	
Benzo(k)fluoranthene	0.8	< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	3	
Chrysene	1.6	< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	< 1	
Dibenzo(a,h)anthracene	2.49	< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	< 1	
Fluoranthene		< 10	< 10	270	< 10	NA	< 11.1	< 25	120	
Fluorene	1980	< 10	< 10	< 10	16	< 10	< 11.1	< 25	56	
Indeno(1,2,3-cd)pyrene	0.022	< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	< 1	
Phenanthrene		< 10	< 10	18700	24	< 10	< 11.1	< 25	49	
Pyrene	135	< 10	< 10	< 10	< 10	< 10	< 11.1	< 25	70	
2-Methylnaphthalene		< 10	< 10	< 10	< 10	NA	< 11.1	< 25	<1	

Notes:

- (1) Geraghty & Miller, March 1994
 (2) Geraghty & Miller, September 1994
 (3) Pilko, July 1988
 (4) Pilko, June 1989
 (5) Pilko, May 1992
 (6) Pilko, March 1993
 (7) GM-0 is a duplicate sample collected at well GM-5

- (8) GM-101 is a duplicate sample collected at well GM-12
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 (12) 35IAC742, Appendix C, Table E
 NA Not analyzed
 SVOCs Semivolatile organic compounds
 ug/L Micrograms per liter (parts per billion)

Table 3. Summary of Groundwater-Quality Data for Polynuclear Aromatic Hydrocarbon Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well ID	Solubility	MW-05	MW-06	MW-06	MW-06	MW-06	MW-06	MW-06	MW-06	MW-07
Sample Date	ug/L (12)	07/20/94	(2) 05/11/88	(3) 1/89	(4) 5/89	(4)(11) 02/11/93	(6) (11) 12/01/93	(1) 07/21/94	(2) 05/10/88	(3)
PAHs (ug/L)										
Naphthalene	31,000	< 0.36	< 10	< 10	< 10	< 10	< 100	< 0.36	< 10	
1-Methylnaphthalene		NA	NA	NA	NA	NA	6600	NA	NA	
Acenaphthene	4,240	19	< 10	< 10	< 10	< 10	< 100	23	< 10	
Acenaphthylene		< 0.29	< 10	< 10	< 10	< 10	1300	< 0.29	< 10	
Anthracene	43.4	1.4	< 10	< 10	< 10	< 10	500	4.1	< 10	
Benzo(a)anthracene	9.4	< 0.13	< 10	< 10	< 10	< 10	680	1.2	< 10	
Benzo(a)pyrene	1.62	< 0.23	< 10	< 10	NA	< 10	630	0.48	< 10	
Benzo(b)fluoranthene	1.5	< 0.18	< 10	< 10	< 10	< 10	1100	< 0.18	< 10	
Benzo(g,h,i)perylene		< 0.19	< 10	< 10	< 10	< 10	290	1.0	< 10	
Benzo(k)fluoranthene	0.8	< 0.17	< 10	< 10	< 10	< 10	500	< 0.17	< 10	
Chrysene	1.6	0.29	< 10	< 10	< 10	< 10	1300	2.8	< 10	
Dibenzo(a,h)anthracene	2.49	< 0.09	< 10	< 10	< 10	< 10	1500	< 0.09	< 10	
Fluoranthene		< 0.20	< 10	< 10	NA	< 10	8100	2.9	14	
Fluorene	1980	31	< 10	230	< 10	< 10	2000	35	< 10	
Indeno(1,2,3-cd)pyrene	0.022	< 0.20	< 10	< 10	< 10	< 10	180	< 0.20	< 10	
Phenanthrene		33	< 10	520	< 10	< 10	2200	88	< 10	
Pyrene	135	1.1	< 10	57	< 10	< 10	6000	3.6	< 10	
2-Methylnapthalene		NA	< 10	< 10	NA	26.2	2500	NA	< 10	

Notes:

- (1) Geraghty & Miller, March 1994
 (2) Geraghty & Miller, September 1994
 (3) Pilko, July 1988
 (4) Pilko, June 1989
 (5) Pilko, May 1992
 (6) Pilko, March 1993
 (7) GM-0 is a duplicate sample collected at well GM-5

- (8) GM-101 is a duplicate sample collected at well GM-12
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 (12) 35IAC742, Appendix C, Table E
 NA Not analyzed
 SVOCs Semivolatile organic compounds
 ug/L Micrograms per liter (parts per billion)

Table 3. Summary of Groundwater-Quality Data for Polynuclear Aromatic Hydrocarbon Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well ID Sample Date	Solubility ug/L (12)	MW-07 1/89	MW-07 (4) 03/10/92	MW-07 (5)(11) 02/11/93	MW-08 (6)(11) 05/10/88	MW-08 (3) 1/89	MW-08 (3) 02/11/93	MW-08 (6)(11) 12/01/93	MW-08 (1) 07/20/94	MW-08 (2)
PAHs (ug/L)										
Naphthalene	31,000	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.36	
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	23	NA	
Acenaphthene	4,240	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.32	
Acenaphthylene		< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.29	
Anthracene	43.4	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.27	
Benzo(a)anthracene	9.4	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.13	
Benzo(a)pyrene	1.62	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.23	
Benzo(b)fluoranthene	1.5	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.18	
Benzo(g,h,i)perylene		< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.19	
Benzo(k)fluoranthene	0.8	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.17	
Chrysene	1.6	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.17	
Dibenzo(a,h)anthracene	2.49	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.09	
Fluoranthene		< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.20	
Fluorene	1980	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.23	
Indeno(1,2,3-cd)pyrene	0.022	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.20	
Phenanthrene		< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.18	
Pyrene	135	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 0.32	
2-Methylnapthalene		< 10	< 10	< 10	NA	< 10	< 10	6	NA	

Notes:

- (1) Geraghty & Miller, March 1994
 (2) Geraghty & Miller, September 1994
 (3) Pilko, July 1988
 (4) Pilko, June 1989
 (5) Pilko, May 1992
 (6) Pilko, March 1993
 (7) GM-0 is a duplicate sample collected at well GM-5

- (8) GM-101 is a duplicate sample collected at well GM-12
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 (12) 35IAC742, Appendix C, Table E
 NA Not analyzed
 SVOCs Semivolatile organic compounds
 ug/L Micrograms per liter (parts per billion)

Table 3. Summary of Groundwater-Quality Data for Polynuclear Aromatic Hydrocarbon Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well ID	Solubility	MW-09	MW-09	MW-09	MW-09	MW-10	MW-10	MW-88
Sample Date	ug/L (12)	5/89	(4)(11)	03/10/92	(5)(11)	02/11/93	(6)(11)	07/20/94
		(2)	5/89	(4)(11)	02/11/93	(6)(11)	07/20/94	(2,10)
PAHs (ug/L)								
Naphthalene	31,000	< 10	< 62.5	< 25	470	< 10	< 25	< 0.36
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
Acenaphthene	4,240	< 10	< 62.5	< 25	1300	< 10	< 25	< 0.32
Acenaphthylene		< 10	< 62.5	< 25	< 0.29	< 10	< 25	< 0.29
Anthracene	43.4	< 10	< 62.5	< 25	470	< 10	< 25	< 0.27
Benzo(a)anthracene	9.4	< 10	< 62.5	< 25	11	< 10	< 25	< 0.13
Benzo(a)pyrene	1.62	NA	< 62.5	< 25	89	NA	< 25	< 0.23
Benzo(b)fluoranthene	1.5	< 10	< 62.5	< 25	70	< 10	< 25	< 0.18
Benzo(g,h,i)perylene		< 10	< 62.5	< 25	7.2	< 10	< 25	< 0.19
Benzo(k)fluoranthene	0.8	< 10	< 62.5	< 25	42	< 10	< 25	< 0.17
Chrysene	1.6	< 10	< 62.5	< 25	190	< 10	< 25	< 0.17
Dibenzo(a,h)anthracene	2.49	< 10	< 62.5	< 25	< 0.09	< 10	< 25	< 0.09
Fluoranthene		NA	< 62.5	< 25	500	NA	< 25	< 0.20
Fluorene	1980	< 10	< 62.5	27.6	4600	< 10	< 25	< 0.23
Indeno(1,2,3-cd)pyrene	0.022	< 10	< 62.5	< 25	59	< 10	< 25	< 0.20
Phenanthrene		< 10	< 62.5	41.6	12000	< 10	< 25	< 0.18
Pyrene	135	< 10	< 62.5	< 25	430	< 10	< 25	< 0.32
2-Methylnaphthalene		NA	276	340	NA	NA	< 25	NA

Notes:

- (1) Geraghty & Miller, March 1994
 (2) Geraghty & Miller, September 1994
 (3) Pilko, July 1988
 (4) Pilko, June 1989
 (5) Pilko, May 1992
 (6) Pilko, March 1993
 (7) GM-0 is a duplicate sample collected at well GM-5

- (8) GM-101 is a duplicate sample collected at well GM-12
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 (12) 351AC742, Appendix C, Table E
 NA Not analyzed
 SVOCs Semivolatile organic compounds
 ug/L Micrograms per liter (parts per billion)

Table 3. Summary of Groundwater-Quality Data for Polynuclear Aromatic Hydrocarbon Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well ID	Solubility	Equip	Equip	Equip	Equip
Sample Date	ug/L (12)	Blank	Blank	Blank	Blank
		FB-01	FB-02	FB-03	GW-01
		07/20/94	(2) 07/21/94	(2) 07/22/94	(2) 07/21/94
			(2)		(2)
PAHs (ug/L)					
Naphthalene	31,000	< 0.36	< 0.36	< 0.36	< 0.36
1-Methylnaphthalene		NA	NA	NA	NA
Acenaphthene	4,240	< 0.32	< 0.32	< 0.32	< 0.32
Acenaphthylene		< 0.29	< 0.29	< 0.29	< 0.29
Anthracene	43.4	< 0.27	< 0.27	< 0.27	< 0.27
Benzo(a)anthracene	9.4	< 0.13	< 0.13	< 0.13	< 0.13
Benzo(a)pyrene	1.62	< 0.23	< 0.23	< 0.23	< 0.23
Benzo(b)fluoranthene	1.5	< 0.18	< 0.18	< 0.18	< 0.18
Benzo(g,h,i)perylene		< 0.19	< 0.19	< 0.19	< 0.19
Benzo(k)fluoranthene	0.8	< 0.17	< 0.17	< 0.17	< 0.17
Chrysene	1.6	< 0.17	< 0.17	< 0.17	< 0.17
Dibenzo(a,h)anthracene	2.49	< 0.09	< 0.09	< 0.09	< 0.09
Fluoranthene		< 0.20	< 0.20	< 0.20	< 0.20
Fluorene	1980	< 0.23	< 0.23	< 0.23	< 0.23
Indeno(1,2,3-cd)pyrene	0.022	< 0.20	< 0.20	< 0.20	< 0.20
Phenanthrene		< 0.18	< 0.18	< 0.18	< 0.18
Pyrene	135	< 0.32	< 0.32	< 0.32	< 0.32
2-Methylnaphthalene		NA	NA	NA	NA

Notes:

- (1) Geraghty & Miller, March 1994
 (2) Geraghty & Miller, September 1994
 (3) Pilko, July 1988
 (4) Pilko, June 1989
 (5) Pilko, May 1992
 (6) Pilko, March 1993
 (7) GM-0 is a duplicate sample collected at well GM-5

- (8) GM-101 is a duplicate sample collected at well GM-12
 (9) GM-99 is a duplicate sample collected at well GM-15
 (10) MW-88 is a duplicate sample collected at well MW-8
 (11) Sample filtered prior to analysis
 (12) 35IAC742, Appendix C, Table E
 NA Not analyzed
 SVOCs Semivolatile organic compounds
 ug/L Micrograms per liter (parts per billion)

Table 4. Summary of Groundwater-Quality Data for Semi -Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Identification Sample Date	MW-02 5/11/88	(1) MW-02 1/89	(2) MW-02 02/11/93	(4)(5) MW-03 5/11/88	(1) MW-03 1/89	(2) MW-04 05/11/88	(1) MW-04 1/89	(2) MW-05 05/11/88	(1)
<i>SVOCs (ug/L)</i>									
2,4-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	2370	
2,6-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	730	
2-Nitroaniline	< 10	< 10	< 50	< 10	< 10	< 10	< 10	< 10	
3,3'-Dichlorobenzidine	< 10	< 10	< 20	< 10	< 10	< 10	< 10	< 10	
3-Nitroaniline	< 10	< 10	< 50	< 10	< 10	< 10	< 10	601	
4,6-Dinitro-2-methylphenol	< 10	< 10	NA	< 10	< 10	< 10	< 10	9010	
4-Chloroaniline	< 10	< 10	< 20	< 10	< 10	< 10	< 10	< 10	
4-Chlorophenyl-phenylether	< 10	< 10	< 10	< 10	< 10	< 10	< 10	300	
4-Nitroaniline	< 10	< 10	< 50	< 10	< 10	< 10	< 10	520	
4-Nitrophenol	< 10	< 10	NA	< 10	< 10	< 10	< 10	517	
Benzoic Acid	< 10	< 10	NA	< 10	< 10	< 10	< 10	5260	
Benzyl alcohol	< 10	< 10	< 20	< 10	< 10	< 10	< 10	< 10	
Bis(2-chloroethoxy)methane	< 10	< 10	< 10	< 10	< 10	< 10	< 10	16	
Bis(2-chloroethyl)ether	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
Bis(2-ethylhexyl)phthalate	297	< 10	< 10	230	< 10	188	< 10	< 10	
Isophorone	< 10	< 10	< 10	< 10	< 10	< 10	< 10	90	
N-Nitroso-di-n-propylamine	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
N-Nitrosodiphenylamine	< 10	< 10	< 10	< 10	< 10	< 10	< 10	860	
Phenol	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10	

Notes:

(1) Pilko, July 1988

(2) Pilko June 1989

(3) Pilko May 1992

(4) Pilko March 1993

(5) Sample filtered prior to analysis

SVOCs Semivolatile organic compounds

ug/L Micrograms per liter

Table 4. Summary of Groundwater-Quality Data for Semi -Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Identification Sample Data	MW-05 1/89	(2) MW-05 5/89	(2)(5) MW-05 03/10/92	(3)(5) MW-05 2/11/93	(4)(5) MW-06 05/11/88	(1) MW-06 1/89	(2) MW-06 5/89	(2)(5) MW-06 02/11/93	(4)(5) MW-06
<i>SVOCs (ug/L)</i>									
2,4-Dinitrotoluene	< 10	< 10	< 11.1	< 25	< 10	66	< 10	< 10	
2,6-Dinitrotoluene	< 10	< 10	< 11.1	< 25	< 10	< 10	< 10	< 10	
2-Nitroaniline	< 10	NA	< 55.5	< 125	< 10	< 10	NA	< 50	
3,3'-Dichlorobenzidine	< 10	< 10	< 22.2	< 50	< 10	< 10	< 10	< 20	
3-Nitroaniline	< 10	NA	< 55.5	< 125	< 10	< 10	NA	< 50	
4,6-Dinitro-2-methylphenol	< 10	NA	NA	NA	< 10	< 10	NA	NA	
4-Chloroaniline	< 10	NA	< 22.2	< 50	< 10	< 10	NA	< 20	
4-Chlorophenyl-phenylether	< 10	< 10	< 11.1	< 25	< 10	15	< 10	< 10	
4-Nitroaniline	< 10	NA	< 55.5	< 125	< 10	< 10	NA	< 50	
4-Nitrophenol	< 10	NA	NA	NA	< 10	< 10	NA	NA	
Benzoic Acid	< 10	NA	NA	NA	< 10	< 10	NA	NA	
Benzyl alcohol	< 10	NA	< 22.2	< 50	< 10	< 10	NA	< 20	
Bis(2-chloroethoxy)methane	< 10	< 10	< 11.1	< 25	< 10	< 10	< 10	< 10	
Bis(2-chloroethyl)ether	< 10	< 10	< 11.1	< 25	262	< 10	< 10	< 10	
Bis(2-ethylhexyl)phthalate	< 10	< 10	< 11.1	< 25	< 10	< 10	< 10	< 10	
Isophorone	< 10	< 10	< 11.1	< 25	< 10	230	< 10	< 10	
N-Nitroso-di-n-propylamine	< 10	< 10	< 11.1	< 25	< 10	< 10	< 10	< 10	
N-Nitrosodiphenylamine	< 10	NA	< 11.1	< 25	< 10	190	NA	< 10	
Phenol	< 10	NA	NA	NA	20	< 10	NA	NA	

Notes:

(1) Pilko, July 1988,

(2) Pilko June 1989

(3) Pilko May 1992

(4) Pilko March 1993

(5) Sample filtered prior to analysis

SVOCs Semivolatile organic compounds

ug/L Micrograms per liter

Table 4. Summary of Groundwater-Quality Data for Semi -Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Identification Sample Date	MW-07 05/10/88	(1) MW-07 1/89	(2) MW-07 03/10/92	(3)(5) MW-07 2/11/93	(4)(5) MW-08 05/10/88	(1) MW-08 1/89	(2) MW-08 02/11/93	(4)(5) MW-09 5/89	(2)(5)
<i>SVOCs (ug/L)</i>									
2,4-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
2,6-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
2-Nitroaniline	< 10	< 10	< 50	< 50	< 10	< 10	< 50	NA	
3,3'-Dichlorobenzidine	< 10	< 10	< 20	< 20	< 10	< 10	< 20	< 10	
3-Nitroaniline	< 10	< 10	< 50	< 50	< 10	< 10	< 50	NA	
4,6-Dinitro-2-methylphenol	< 10	< 10	NA	NA	< 10	< 10	NA	NA	
4-Chloroaniline	< 10	< 10	< 20	< 20	< 10	< 10	< 20	NA	
4-Chlorophenyl-phenylether	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
4-Nitroaniline	< 10	< 10	< 50	< 50	< 10	< 10	< 50	NA	
4-Nitrophenol	< 10	< 10	NA	NA	< 10	< 10	NA	NA	
Benzoic Acid	< 10	< 10	NA	NA	< 10	< 10	NA	NA	
Benzyl alcohol	< 10	< 10	< 20	< 20	< 10	< 10	< 20	NA	
Bis(2-chloroethoxy)methane	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
Bis(2-chloroethyl)ether	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
Bis(2-ethylhexyl)phthalate	567	< 10	< 10	< 10	164	< 10	< 10	< 10	
Isophorone	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
N-Nitroso-di-n-propylamine	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
N-Nitrosodiphenylamine	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA	
Phenol	< 10	< 10	NA	NA	< 10	< 10	NA	NA	

Notes:

(1) Pilko, July 1988

(2) Pilko June 1989

(3) Pilko May 1992

(4) Pilko March 1993

(5) Sample filtered prior to analysis

SVOCs Semivolatile organic compounds

ug/L Micrograms per liter

Table 4. Summary of Groundwater-Quality Data for Semi -Volatile Organic Compounds, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Identification	MW-09	(3)(5)	MW-09	(4)(5)	MW-10	(2)(5)	MW-10	(4)(5)
Sample Date	03/10/92		2/11/93		5/89		2/11/93	
<i>SVOCs (ug/L)</i>								
2,4-Dinitrotoluene	< 62.5	<	25	<	10	<	25	
2,6-Dinitrotoluene	< 62.5	<	25	<	10	<	25	
2-Nitroaniline	< 313	<	125		NA	<	125	
3,3'-Dichlorobenzidine	< 125	<	50	<	10	<	50	
3-Nitroaniline	< 313	<	125		NA	<	125	
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA	
4-Chloroaniline	< 125	<	50		NA	<	50	
4-Chlorophenyl-phenylether	< 62.5	<	25	<	10	<	25	
4-Nitroaniline	< 313	<	125		NA	<	125	
4-Nitrophenol	NA		NA		NA		NA	
Benzoic Acid	NA		NA		NA		NA	
Benzyl alcohol	< 125	<	50		NA	<	50	
Bis(2-chloroethoxy)methane	< 62.5	<	25	<	10	<	25	
Bis(2-chloroethyl)ether	< 62.5	<	25	<	10	<	25	
Bis(2-ethylhexyl)phthalate	< 62.5	<	25	<	10	<	25	
Isophorone	< 62.5	<	25	<	10	<	25	
N-Nitroso-di-n-propylamine	< 62.5	<	25	<	10	<	25	
N-Nitrosodiphenylamine	< 62.5	<	25		NA	<	25	
Phenol	NA		NA		NA		NA	

Notes:

(1) Pilko, July 1988

(2) Pilko June 1989

(3) Pilko May 1992

(4) Pilko March 1993

(5) Sample filtered prior to analysis

SVOCs Semivolatile organic compounds

ug/L Micrograms per liter

Table 5. Summary of Groundwater-Quality Data for Pesticides/PCBs, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	GM-0		GM-01		GM-01		GM-02		GM-02		GM-03		GM-03		GM-04	
Sample Date	12/01/93	(1,6)	11/30/93	(1)	07/21/94	(2)	11/30/93	(1)	07/21/94	(2)	11/30/93	(1)	07/21/94	(2)	11/30/93	(2)
<i>Pesticides/ PCBs (ug/L)</i>																
Aldrin	NA		NA		NA		NA		NA		NA		NA		NA	
Alpha-BHC	NA		NA		NA		NA		NA		NA		NA		NA	
Beta-BHC	NA		NA		NA		NA		NA		NA		NA		NA	
Chlordane	NA		NA		NA		NA		NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA		NA		NA		NA		NA	
Lindane	NA		NA		NA		NA		NA		NA		NA		NA	
p,p'-DDT	NA		NA		NA		NA		NA		NA		NA		NA	
PCB 1254	< 1		< 1		< 0.5		< 1		< 0.5		< 1		< 13		< 1	
PCB1260	< 1		< 1		< 0.5		< 1		< 0.5		< 1		< 13		< 1	

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) MW-88 is a duplicate sample collected at well MW-8

(8) GM-99 is a duplicate sample collected at well GM-15

(9) Sample filtered prior to analysis

NA Not Analyzed

PCBs Polychlorinated biphenyls

ug/L Micrograms per liter (parts per billion)

Table 5. Summary of Groundwater-Quality Data for Pesticides/PCBs, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	GM-04		GM-05		GM-05		GM-06		GM-06		GM-07		GM-08		GM-09
Sample Date	07/21/94	(2)	12/01/93	(1)	07/22/94	(2)	12/01/93	(1)	07/22/94	(2)	07/21/94	(2)	07/21/94	(2)	07/23/94 (2)
<i>Pesticides/PCBs(ug/L)</i>															
Aldrin	NA		NA		NA		NA		NA		NA		NA		NA
Beta BHC	NA		NA		NA		NA		NA		NA		NA		NA
Beta-BHC	NA		NA		NA		NA		NA		NA		NA		NA
Chlordane	NA		NA		NA		NA		NA		NA		NA		NA
Heptachlor	NA		NA		NA		NA		NA		NA		NA		NA
Lindane	NA		NA		NA		NA		NA		NA		NA		NA
p,p'-DDT	NA		NA		NA		NA		NA		NA		NA		NA
PCB 1254	< 0.5		1		3.3	< 1	< 3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
PCB 1260	< 0.5	< 1	< 0.5	< 1	< 3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Notes:

- (1) Geraghty & Miller, March 1994
- (2) Geraghty & Miller, September 1994
- (3) Pilko, July 1988
- (4) Pilko, June 1989
- (5) Pilko, March 1993
- (6) GM-0 is a duplicate sample collected at well GM-5
- (7) MW-88 is a duplicate sample collected at well MW-8
- (8) GM-99 is a duplicate sample collected at well GM-15
- (9) Sample filtered prior to analysis
- NA Not Analyzed
- PCBs Polychlorinated biphenyls
- ug/L Micrograms per liter (parts per billion)

Table 5. Summary of Groundwater-Quality Data for Pesticides/PCBs, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	GM-10		GM-11		GM-12		GM-13		GM-14		GM-15		GM-16		GM-17	
Sample Date	07/23/94	(2)	07/22/94	(2)	07/22/94	(2)	07/22/94	(2)	07/22/94	(2)	07/22/94	(2)	07/22/94	(2)	07/22/94	(2)
<i>Pesticides/PCBs (ug/L)</i>																
Aldrin	NA		NA		NA		NA		NA		NA		NA		NA	
Alpha-BHC	NA		NA		NA		NA		NA		NA		NA		NA	
Beta-BHC	NA		NA		NA		NA		NA		NA		NA		NA	
Chlordane	NA		NA		NA		NA		NA		NA		NA		NA	
Heptachlor	NA		NA		NA		NA		NA		NA		NA		NA	
Lindane	NA		NA		NA		NA		NA		NA		NA		NA	
p,p'-DDT	NA		NA		NA		NA		NA		NA		NA		NA	
PCB 1254	< 0.5	<	0.5	<	0.5	<	0.5	<	0.5	<	0.5	<	0.5	<	0.5	<
PCB 1260	< 0.5	<	0.5	<	0.5	<	0.5	<	0.5	<	0.5	<	0.5	<	0.5	<

Notes:

- (1) Geraghty & Miller, March 1994
 - (2) Geraghty & Miller, September 1994
 - (3) Pilko, July 1988
 - (4) Pilko, June 1989
 - (5) Pilko, March 1993
 - (6) GM-0 is a duplicate sample collected at well GM-5
 - (7) MW-88 is a duplicate sample collected at well MW-8
 - (8) GM-99 is a duplicate sample collected at well GM-15
 - (9) Sample filtered prior to analysis
- NA Not Analyzed
PCBs Polychlorinated biphenyls
ug/L Micrograms per liter (parts per billion)

Table 5. Summary of Groundwater-Quality Data for Pesticides/PCBs, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	GM-18		GM-19		GM-99		MW-02		MW-02		MW-03		MW-03	
Sample Date	07/22/94	(2)	07/21/94	(2)	07/22/94	(2,8)	5/11/88	(3)	1/89	(4)	05/11/88	(3)	1/89	(4)
<i>Pesticides/PCBs (ug/L)</i>														
Aldrin	NA		NA		NA		< 0.05	<	0.05		< 0.05	<	0.05	
Alpha-BHC	NA		NA		NA		1.32	<	0.05		< 0.05	<	0.05	
Beta-BHC	NA		NA		NA		< 0.05	<	0.05		< 0.05	<	0.05	
Chlordane	NA		NA		NA		2.28	<	0.50		< 0.50	<	0.50	
Heptachlor	NA		NA		NA		0.43	<	0.05		0.61	<	0.05	
Lindane	NA		NA		NA		0.56	<	0.05		< 0.05	<	0.05	
p,p'-DDT	NA		NA		NA		< 0.1	<	0.10		< 0.10		0.40	
PCB 1254	< 0.5	<	0.5	<	0.5	<	1	<	1	<	1	<	1	
PCB 1260	< 0.5	<	0.5	<	0.5	<	1	<	1	<	1	<	1	

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) MW-88 is a duplicate sample collected at well MW-8

(8) GM-99 is a duplicate sample collected at well GM-15

(9) Sample filtered prior to analysis

NA Not Analyzed

PCBs Polychlorinated biphenyls

ug/L Micrograms per liter (parts per billion)

Table 5. Summary of Groundwater-Quality Data for Pesticides/PCBs, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	MW-04		MW-04		MW-05		MW-05		MW-05		MW-05		MW-05		MW-06	
Sample Date	05/11/88	(3)	1/89	(4)	05/11/88	(3)	1/89	(4)	5/89	(4)(9)	12/01/93	(1)	07/20/94	(2)	05/11/88	(3)
<i>Pesticides/PCBs (ug/L)</i>																
Aldrin	< 0.05		0.58	<	0.05	<	0.05	<	10		NA		NA	<	0.05	
Alpha-BHC	< 0.05	<	0.05	<	0.05	<	0.05		NA		NA		NA		0.60	
Beta-BHC	< 0.05	<	0.05		.89	<	0.05	<	10		NA		NA	<	0.05	
Chlordane	< 0.50	<	0.50	<	0.50	<	0.50	<	10		NA		NA	<	0.50	
Heptachlor	< 0.05	<	0.05	<	0.05	<	0.05	<	10		NA		NA	<	0.05	
Lindane	< 0.05		1.2	<	0.05	<	0.05		NA		NA		NA	<	0.05	
p,p'-DDT	< 0.10		0.39	<	0.10	<	0.10		NA		NA		NA	<	0.10	
PCB 1254	< 1	<	1	<	1	<	1	<	10	<	1	<	0.5	<	1	
PCB1260	< 1	<	1	<	1	<	1	<	10	<	1	<	0.5	<	1	

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) MW-88 is a duplicate sample collected at well MW-8

(8) GM-99 is a duplicate sample collected at well GM-15

(9) Sample filtered prior to analysis

NA Not Analyzed

PCBs Polychlorinated biphenyls

ug/L Micrograms per liter (parts per billion)

Table 5. Summary of Groundwater-Quality Data for Pesticides/PCBs, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	MW-06		MW-06		MW-06		MW-06		MW-07		MW-07		MW-08		MW-08	
Sample Date	1/89	(4)	5/89	(4)(9)	12/01/93	(1)	07/21/94	(2)	05/10/88	(3)	1/89	(4)	05/10/88	(3)	1/89	(4)
<i>Pesticides/PCBs (ug/L)</i>																
Aldrin	< 0.05	<	10		NA		NA	< 0.05		0.05	<	0.05	<	0.05	<	0.05
Alpha-BHC	< 0.05		NA		NA		NA	< 0.05	<	0.05		0.25	<	0.05		
Beta-BHC	< 0.05	<	10		NA		NA	< 0.05	<	0.05	<	0.05	<	0.05	<	0.05
Chlordane	< 0.50	<	10		NA		NA	< 0.50	<	0.50	<	0.50	<	0.50	<	0.50
Heptachlor	< 0.05	<	10		NA		NA	< 0.05	<	0.05	<	0.05	<	0.05	<	0.05
Lindane	< 0.05		NA		NA		NA	< 0.05		0.11		5.92	<	0.05		
p,p'-DDT	< 0.10		NA		NA		NA	< 0.10		0.17		2.14		0.24		
PCB 1254	< 1	<	10	<	1	<	0.5	<	1	<	1	<	1	<	1	
PCB 1260	< 1	<	10	<	1	<	0.5	<	1	<	1	<	1	<	1	

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) MW-88 is a duplicate sample collected at well MW-8

(8) GM-99 is a duplicate sample collected at well GM-15

(9) Sample filtered prior to analysis

NA Not Analyzed

PCBs Polychlorinated biphenyls

ug/L Micrograms per liter (parts per billion)

Table 5. Summary of Groundwater-Quality Data for Pesticides/PCBs, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Identification	MW-08	MW-08	MW-09	MW-09	MW-10	MW-88	Equip
Sample Date	12/01/93	(1) 07/20/94	(2) 5/89	(4)(9) 07/20/94	(2) 5/89	(4)(9) 07/20/94	Blank
<i>Pesticides/PCBs (ug/L)</i>							
Aldrin	NA	NA	< 10	NA	< 10	NA	NA
Alpha-BHC	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	NA	NA	< 10	NA	< 10	NA	NA
Chlordane	NA	NA	< 10	NA	< 10	NA	NA
Heptachlor	NA	NA	< 10	NA	< 10	NA	NA
Lindane	NA	NA	NA	NA	NA	NA	NA
p,p'-DDT	NA	NA	NA	NA	NA	NA	NA
PCB 1254	< 1	< 0.5	< 10	58	< 10	< 0.5	0.5
PCB 1260	< 1	< 0.5	< 10	< 13	< 10	< 0.5	0.5

Notes:

- (1) Geraghty & Miller, March 1994
- (2) Geraghty & Miller, September 1994
- (3) Pilko, July 1988
- (4) Pilko, June 1989
- (5) Pilko, March 1993
- (6) GM-0 is a duplicate sample collected at well GM-5
- (7) MW-88 is a duplicate sample collected at well MW-8
- (8) GM-99 is a duplicate sample collected at well GM-15
- (9) Sample filtered prior to analysis
- NA Not Analyzed
- PCBs Polychlorinated biphenyls
- ug/L Micrograms per liter (parts per billion)

Table 5. Summary of Groundwater-Quality Data for Pesticides/PCBs, Sylvan Slough Removal Action Site, Rock Island, Illinois.

Monitoring Well Information	Equip Blank FB-01	Equip Blank FB-02	Equip Blank FB-03
Sample Date	07/20/94	(2) 07/21/94	(2) 07/22/94
<i>Pesticides/PCBs (ug/L)</i>			
Aldrin	NA	NA	NA
Alpha-BHC	NA	NA	NA
Beta-BHC	NA	NA	NA
Chlordane	NA	NA	NA
Heptachlor	NA	NA	NA
Lindane	NA	NA	NA
p,p'-DDT	NA	NA	NA
PCB 1254	< 0.5	< 0.5	< 0.5
PCB 1260	< 0.5	< 0.5	< 0.5

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) MW-88 is a duplicate sample collected at well MW-8

(8) GM-99 is a duplicate sample collected at well GM-15

(9) Sample filtered prior to analysis

NA Not Analyzed

PCBs Polychlorinated biphenyls

ug/L Micrograms per liter (parts per billion)

Table 6. Summary of Groundwater-Quality Data for Metals/Indicators, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Identification	GM-0		GM-01		GM-02		GM-03		GM-04		GM-05		GM-06		MW-02
Sample Date	12/01/93	(1,6,7)	11/30/93	(1,7)	11/30/93	(1,7)	11/30/93	(1,7)	11/30/93	(1,7)	12/01/93	(1,7)	12/01/93	(1,7)	5/11/88 (3)
<i>Metals/Indicators (mg/L)</i>															
Antimony	NA		NA		NA		NA		NA		NA		NA		0.02
Arsenic	NA		NA		NA		NA		NA		NA		NA		0.04
Beryllium	NA		NA		NA		NA		NA		NA		NA		0.06
Cadmium	NA		NA		NA		NA		NA		NA		NA		0.03
Chromium	NA		NA		NA		NA		NA		NA		NA	<	0.01
Copper	NA		NA		NA		NA		NA		NA		NA	<	0.01
Lead	< 0.003		< 0.003		< 0.003		< 0.003		< 0.003		< 0.003		< 0.003		0.11
Mercury	NA		NA		NA		NA		NA		NA		NA	<	0.002
Nickel	NA		NA		NA		NA		NA		NA		NA		0.56
Selenium	NA		NA		NA		NA		NA		NA		NA		0.05
Silver	NA		NA		NA		NA		NA		NA		NA		0.03
Thallium	NA		NA		NA		NA		NA		NA		NA	<	0.01
Zinc	NA		NA		NA		NA		NA		NA		NA		1.03
Cyanide	NA		NA		NA		NA		NA		NA		NA		0.06
Phenol	NA		NA		NA		NA		NA		NA		NA		NA
TPH	NA		NA		NA		NA		NA		NA		NA		NA
Oil & Grease	NA		NA		NA		NA		NA		NA		NA		NA

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) Metals sample filtered prior to analysis

NA Not analyzed

mg/L Milligrams per liter (parts per million)

Table 6. Summary of Groundwater-Quality Data for Metals/Indicators, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Identification Sample Date	MW-02 1/89	MW-02 (4) 5/89	MW-02 (4)(7) 03/10/92	MW-02 (5) 02/11/93	MW-03 (6,7) 05/11/88	MW-03 (3) 1/89	MW-03 (4) 05/11/88	MW-04 (3) 1/89	MW-04 (4)
<i>Metals/Indicators (mg/L)</i>									
Antimony	NA	NA	NA	NA	0.02	NA	0.01	NA	
Arsenic	NA	NA	NA	NA	0.04	NA	0.04	NA	
Beryllium	NA	NA	NA	NA	0.11	NA	0.08	NA	
Cadmium	< 0.01	NA	NA	NA	0.05	< 0.01	0.05	< 0.01	
Chromium	NA	NA	NA	NA	0.04	NA	0.02	NA	
Copper	NA	NA	NA	NA	< 0.01	NA	< 0.01	NA	
Lead	0.98	0.01	0.190	0.160	0.10	0.13	0.10	0.65	
Mercury	NA	NA	NA	NA	< 0.002	NA	< 0.002	NA	
Nickel	0.04	NA	NA	NA	1.58	0.01	0.56	0.02	
Selenium	NA	NA	NA	NA	0.06	NA	0.03	NA	
Silver	NA	NA	NA	NA	0.04	NA	0.03	NA	
Thallium	NA	NA	NA	NA	< 0.01	NA	< 0.01	NA	
Zinc	0.51	NA	NA	NA	0.83	0.15	0.33	0.15	
Cyanide	< 0.05	NA	NA	NA	< 0.05	< 0.05	< 0.05	< 0.05	
Phenol	0.09	NA	NA	NA	NA	< 0.05	NA	< 0.05	
TPH	16.7	NA	2.0	< 1	NA	< 1	NA	1.3	
Oil & Grease	NA	1.3	NA	NA	NA	NA	NA	NA	

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) Metals sample filtered prior to analysis

NA Not analyzed

mg/L Milligrams per liter (parts per million)

Table 6. Summary of Groundwater-Quality Data for Metals/Indicators, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Information	MW-04	MW-05	MW-05	MW-05	MW-05	MW-05	MW-05
Sample Data	03/10/92	(5) 05/11/88	(3) 1/89	(4) 5/89	(4)(7) 03/10/92	(5) 02/11/93	(6,7) 12/01/93 (1) (7)
<i>Metals/Indicators (mg/L)</i>							
Antimony	NA	0.01	NA	NA	NA	NA	NA
Arsenic	NA	0.04	NA	NA	NA	NA	NA
Beryllium	NA	0.12	NA	NA	NA	NA	NA
Cadmium	NA	0.07	0.04	NA	NA	NA	NA
Chromium	NA	0.01	NA	NA	NA	NA	NA
Copper	NA	< 0.01	NA	NA	NA	NA	NA
Lead	2.52	0.06	0.54	0.05	0.030	0.050	< 0.003
Mercury	NA	< 0.002	NA	NA	NA	NA	NA
Nickel	NA	0.54	0.20	NA	NA	NA	NA
Selenium	NA	0.04	NA	NA	NA	NA	NA
Thallium	NA	< 0.01	NA	NA	NA	NA	NA
Silver	NA	0.04	NA	NA	NA	NA	NA
Zinc	NA	0.53	0.78	NA	NA	NA	NA
Cyanide	NA	< 0.05	< 0.05	NA	NA	NA	NA
Phenol	NA	NA	< 0.05	NA	NA	NA	NA
TPH	1.0	NA	9.7	< 1.0	NA	1.3	NA
Oil & Grease	NA	NA	NA	NA	NA	NA	NA

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) Metals sample filtered prior to analysis

NA Not analyzed

mg/L Milligrams per liter (parts per million)

Table 6. Summary of Groundwater-Quality Data for Metals/Indicators, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Identification Sample Date	MW-06 05/11/88	MW-06 (3) 1/89	MW-06 (4) 5/89	MW-06 (4,7) 03/10/92	MW-06 (5) 02/11/93	MW-06 (6,7) 12/01/93	MW-07 (1,7) 05/10/88	MW-07 (3) 1/89	MW-07 (4)
<i>Metals/Indicators (mg/L)</i>									
Antimony	0.01	NA	NA	NA	NA	NA	0.03	NA	
Arsenic	0.04	NA	NA	NA	NA	NA	0.03	NA	
Beryllium	0.11	NA	NA	NA	NA	NA	0.12	NA	
Cadmium	0.07	< 0.01	NA	NA	NA	NA	0.08	0.02	
Chromium	0.06	NA	NA	NA	NA	NA	0.01	NA	
Copper	< 0.01	NA	NA	NA	NA	NA	< 0.01	NA	
Lead	0.94	< 0.01	0.03	0.100	0.060	< 0.003	0.25	0.53	
Mercury	< 0.002	NA	NA	NA	NA	NA	< 0.002	NA	
Nickel	1.7	< 0.01	NA	NA	NA	NA	0.58	0.04	
Selenium	0.05	NA	NA	NA	NA	NA	0.04	NA	
Silver	0.02	NA	NA	NA	NA	NA	0.01	NA	
Thallium	< 0.01	NA	NA	NA	NA	NA	< 0.01	NA	
Zinc	0.51	0.04	NA	NA	NA	NA	0.65	0.58	
Cyanide	< 0.05	< 0.05	NA	NA	NA	NA	0.08	< 0.05	
Phenol	NA	< 0.05	NA	NA	NA	NA	NA	< 0.05	
TPH	NA	75	< 1	2300	1.3	NA	NA	< 1	
Oil & Grease	NA	NA	NA	NA	NA	NA	NA	NA	

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) Metals sample filtered prior to analysis

NA Not analyzed

Table 6. Summary of Groundwater-Quality Data for Metals/Indicators, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Information	MW-07	MW-07	MW-08	MW-08	MW-08	MW-08	MW-08	MW-08	MW-09
Sample Date	03/10/92	(5) 02/11/93	(6,7) 05/10/88	(3) 1/89	(4) 03/10/92	(5) 02/11/93	(6,7) 12/01/93	(1,7) 5/89	(4,7)
<i>Metals/Indicators (mg/L)</i>									
Antimony	NA	NA	0.03	NA	NA	NA	NA	NA	
Arsenic	NA	NA	0.03	NA	NA	NA	NA	NA	
Beryllium	NA	NA	0.12	NA	NA	NA	NA	NA	
Cadmium	NA	NA	0.09	< 0.01	NA	NA	NA	NA	
Chromium	NA	NA	< 0.01	NA	NA	NA	NA	NA	
Copper	NA	NA	< 0.01	NA	NA	NA	NA	NA	
Lead	1.06	0.190	0.03	0.07	0.050	0.240	< 0.003	0.21	
Mercury	NA	NA	< 0.002	NA	NA	NA	NA	NA	
Nickel	NA	NA	1.36	0.01	NA	NA	NA	NA	
Selenium	NA	NA	0.02	NA	NA	NA	NA	NA	
Silver	NA	NA	0.01	NA	NA	NA	NA	NA	
Thallium	NA	NA	< 0.01	NA	NA	NA	NA	NA	
Zinc	NA	NA	0.22	0.13	NA	NA	NA	NA	
Cyanide	NA	NA	< 0.05	< 0.05	NA	NA	NA	NA	
Phenol	NA	NA	NA	< 0.05	NA	NA	NA	NA	
TPH	NA	< 1	NA	4	< 1	1.3	NA	< 1	
Oil & Grease	NA	NA	NA	NA	NA	NA	NA	NA	

Notes:

(1) Geraghty & Miller, March 1994

(2) Geraghty & Miller, September 1994

(3) Pilko, July 1988

(4) Pilko, June 1989

(5) Pilko, March 1993

(6) GM-0 is a duplicate sample collected at well GM-5

(7) Metals sample filtered prior to analysis

Table 6. Summary of Groundwater-Quality Data for Metals/Indicators, Sylvan Slough Removal Action Site, Rock Island, Illinois

Monitoring Well Identification	MW-09	MW-09	MW-10	MW-10	MW-10	Equip. Blank
Sample Date	03/10/92	(5) 02/11/93	(6,7) 5/89	(4,7) 03/10/92	(5) 02/11/93	(6,7) 5/89 (4,7)
<i>Metals/Indicators (mg/L)</i>						
Antimony	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA
Lead	0.160	0.240	0.15	0.300	0.090	< 0.01
Mercury	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA
TPH	NA	175	< 1	2100	1.2	NA
Oil & Grease	NA	NA	NA	NA	NA	< 1

Notes:

- (1) Geraghty & Miller, March 1994
- (2) Geraghty & Miller, September 1994
- (3) Pilko, July 1988
- (4) Pilko, June 1989
- (5) Pilko, March 1993
- (6) GM-0 is a duplicate sample collected at well GM-5
- (7) Metals sample filtered prior to analysis

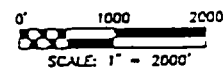




NOTES:

1. PROPERTY BOUNDARIES DEPICTED ARE APPROXIMATE
2. BURLINGTON NORTHERN OWNS A STRIP OF LAND FIVE FEET WIDE NORTH OF THE NAVISTAR PROPERTY ADJACENT TO THE SLOUGH (NOT SHOWN).

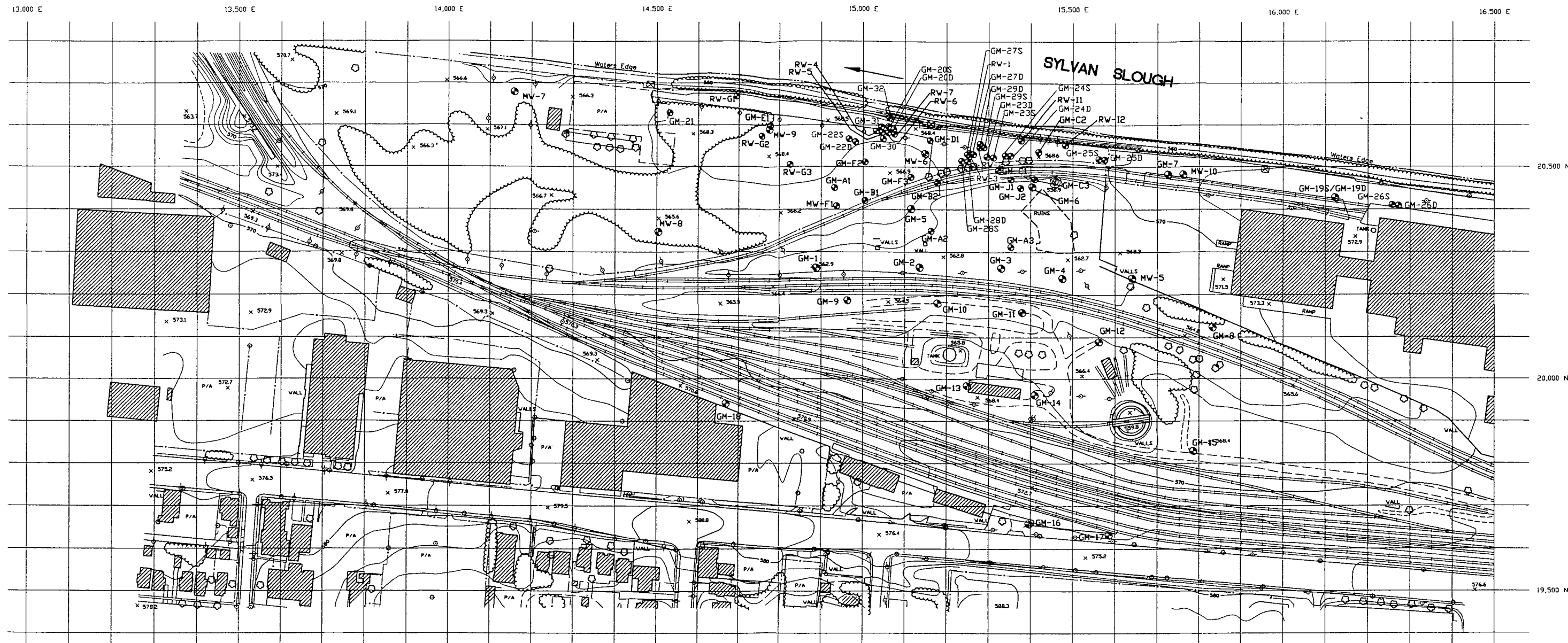
SOURCE: U.S.G.S. QUADRANGLE, DAVENPORT EAST, IOWA-ILLINOIS DATED 1991



SITE LOCATION MAP
GROUNDWATER QUALITY ASSESSMENT REPORT
SYLVAN SLOUGH REMOVAL ACTION SITE
ROCK ISLAND, ILLINOIS

FIGURE

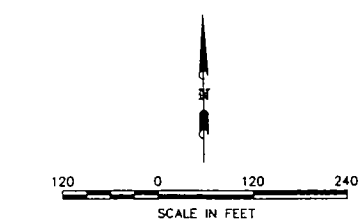
1



MONITORING WELLS NOT SHOWN:

MW-2 2,640 FT. EAST OF GM-26S/GM-26D
 MW-3 1,270 FT. EAST OF GM-26S/GM-26D
 MW-4 400 FT. EAST OF GM-26S/GM-26D

- LEGEND**
- MONITORING WELL/NUMBER
 - FENCE
 - RAILROAD TRACKS
 - ▨ EXISTING STRUCTURE/BUILDING
 - x 376.4 SPOT ELEVATION AT GRADE
 - EXISTING GRADE CONTOUR
 - UTILITY POLE
 - P/A PAVED AREA
 - TREE
 - TREE LINE
 - WATERS EDGE



SOURCE: ABRAM AERIAL SURVEY CORPORATION, LANSING MICHIGAN.
 ABRAMS CONTRACT A.A.S.C. #25637. DATE OF PHOTOGRAPHY JULY 26, 1994. GRADE CONTOUR INTERVAL = 2'.
 HORIZONTAL CONTROL GRID SITE SPECIFIC. SITE ELEVATIONS BASED ON U.S.G.S. ELEVATIONS.



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REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: 02299 010	FILE NO.: 9700064.DWG
DRAWING NO.: 02299010-F102	PLOT SCALE: 1"=120'
DRAWN BY: S. GOSWAMI	DATE: SEPT. 5, 1997
CHECKED BY:	DATE:
APPROVED BY:	DATE:
LAST REVISION BY: S. GOSWAMI	DATE: SEPT. 5, 1997

MONITORING WELL LOCATION MAP
 GROUNDWATER QUALITY ASSESSMENT REPORT
 SYLVAN SLOUGH REMOVAL ACTION SITE
 ROCK ISLAND, ILLINOIS



Section 742.APPENDIX B: Tier 1 Tables and Illustrations

Section 742.TABLE E: Tier 1 Groundwater Remediation Objectives for the Groundwater Component of the Groundwater Ingestion Route

CAS No.	Chemical Name	Groundwater Remediation Objective	
		Class I (mg/L)	Class II (mg/L)
83-32-9	Acenaphthene	0.42	2.1
67-64-1	Acetone	0.7	0.7
15972-60-8	Alachlor	0.002 ^c	0.01 ^c
116-06-3	Aldicarb	0.003 ^c	0.015 ^c
309-00-2	Aldrin	0.00004 ^a	0.0002
120-12-7	Anthracene	2.1	10.5
1912-24-9	Atrazine	0.003 ^c	0.015 ^c
71-43-2	Benzene	0.005 ^c	0.025 ^c
56-55-3	Benzo(a)anthracene	0.00013 ^a	0.00065
205-99-2	Benzo(b)fluoranthene	0.00018 ^a	0.0009
207-08-9	Benzo(k)fluoroanthene	0.00017 ^a	0.00085
50-32-8	Benzo(a)pyrene	0.0002 ^{a,c}	0.002 ^c
111-44-4	Bis(2-chloroethyl)ether	0.01 ^a	0.01
117-81-7	Bis(2-ethylhexyl)phthalate	0.006 ^{a,c}	0.06 ^c
75-27-4	Bromodichloromethane (Dichlorobromomethane)	0.00002 ^a	0.00002
75-25-2	Bromoform	0.0002 ^a	0.0002
71-36-3	Butanol	0.7	0.7
85-68-7	Butyl benzyl phthalate	1.4	7.0
86-74-8	Carbazole	—	—
1563-66-2	Carbofuran	0.04 ^c	0.2 ^c
75-15-0	Carbon disulfide	0.7	3.5
56-23-5	Carbon tetrachloride	0.005 ^c	0.025 ^c
57-74-9	Chlordane	0.002 ^c	0.01 ^c

CAS No.	Chemical Name	Groundwater Remediation Objective	
		Class I (mg/L)	Class II (mg/L)
108-90-7	Chlorobenzene (Monochlorobenzene)	0.1 ^c	0.5 ^c
124-48-1	Chlorodibromomethane (Dibromochloromethane)	0.14	0.14
67-66-3	Chloroform	0.00002 ^a	0.0001
218-01-9	Chrysene	0.0015 ^a	0.0075
94-75-7	2,4-D	0.07 ^c	0.35 ^c
75-99-0	Dalapon	0.2 ^c	2.0 ^c
72-54-8	DDD	0.00011 ^a	0.00055
72-55-9	DDE	0.00004 ^a	0.0002
50-29-3	DDT	0.00012 ^a	0.0006
53-70-3	Dibenzo(a,h)anthracene	0.0003 ^a	0.0015
96-12-8	1,2-Dibromo-3-chloropropane	0.0002 ^c	0.0002 ^c
106-93-4	1,2-Dibromoethane (Ethylene dibromide)	0.00005 ^{a,c}	0.0005 ^c
84-74-2	Di-n-butyl phthalate	0.7	3.5
95-50-1	1,2-Dichlorobenzene (o - Dichlorobenzene)	0.6 ^c	1.5 ^c
106-46-7	1,4-Dichlorobenzene (p - Dichlorobenzene)	0.075 ^c	0.375 ^c
91-94-1	3,3'-Dichlorobenzidine	0.02 ^a	0.1
75-34-3	1,1-Dichloroethane	0.7	3.5
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	0.005 ^c	0.025 ^c
75-35-4	1,1-Dichloroethylene ^b	0.007 ^c	0.035 ^c
156-59-2	cis-1,2-Dichloroethylene	0.07 ^c	0.2 ^c
156-60-5	trans-1,2-Dichloroethylene	0.1 ^c	0.5 ^c
78-87-5	1,2-Dichloropropane	0.005 ^c	0.025 ^c
542-75-6	1,3-Dichloropropene (1,3-Dichloropropylene, cis + trans)	0.001 ^a	0.005

		Groundwater Remediation Objective	
CAS No.	Chemical Name	Class I (mg/L)	Class II (mg/L)
60-57-1	Dieldrin	0.00002 ^a	0.0001
84-66-2	Diethyl phthalate	5.6	5.6
121-14-2	2,4-Dinitrotoluene ^a	0.00002	0.00002
606-20-2	2,6-Dinitrotoluene ^a	0.0001	0.0001
88-85-7	Dinoseb	0.007 ^c	0.07 ^c
117-84-0	Di- <i>n</i> -octyl phthalate	0.14	0.7
115-29-7	Endosulfan	0.042	0.21
145-73-3	Endothall	0.1 ^c	0.1 ^c
72-20-8	Endrin	0.002 ^c	0.01 ^c
100-41-4	Ethylbenzene	0.7 ^c	1.0 ^c
206-44-0	Fluoranthene	0.28	1.4
86-73-7	Fluorene	0.28	1.4
76-44-8	Heptachlor	0.0004 ^c	0.002 ^c
1024-57-3	Heptachlor epoxide	0.0002 ^c	0.001 ^c
118-74-1	Hexachlorobenzene	0.00006 ^a	0.0003
319-84-6	<i>alpha</i> -HCH (<i>alpha</i> -BHC)	0.00003 ^a	0.00015
58-89-9	<i>gamma</i> -HCH (Lindane)	0.0002 ^c	0.001 ^c
77-47-4	Hexachlorocyclopentadiene	0.05 ^c	0.5 ^c
67-72-1	Hexachloroethane	0.007	0.035
193-39-5	Indeno(1,2,3- <i>c,d</i>)pyrene	0.00043 ^a	0.00215
78-59-1	Isophorone	1.4	1.4
72-43-5	Methoxychlor	0.04 ^c	0.2 ^c
74-83-9	Methyl bromide (Bromomethane)	0.0098	0.049
75-09-2	Methylene chloride (Dichloromethane)	0.005 ^c	0.05 ^c
91-20-3	Naphthalene ²	0.025	0.039
98-95-3	Nitrobenzene ²	0.0035	0.0035

		Groundwater Remediation Objective	
CAS No.	Chemical Name	Class I (mg/L)	Class II (mg/L)
1918-02-1	Picloram	0.5 ^c	5.0 ^c
1336-36-3	Polychlorinated biphenyls (PCBs) ^a	0.0005 ^c	0.0025 ^c
129-00-0	Pyrene	0.21	1.05
122-34-9	Simazine	0.004 ^c	0.04 ^c
100-42-5	Styrene	0.1 ^c	0.5 ^c
93-72-1	2,4,5-TP (Silvex)	0.05 ^c	0.25 ^c
127-18-4	Tetrachloroethylene (Perchloroethylene)	0.005 ^c	0.025 ^c
108-88-3	Toluene	1.0 ^c	2.5 ^c
8001-35-2	Toxaphene	0.003 ^c	0.015 ^c
120-82-1	1,2,4-Trichlorobenzene	0.07 ^c	0.7 ^c
71-55-6	1,1,1-Trichloroethane ²	0.2 ^c	1.0 ^c
79-00-5	1,1,2-Trichloroethane	0.005 ^c	0.05 ^c
79-01-6	Trichloroethylene	0.005 ^c	0.025 ^c
108-05-4	Vinyl acetate	7.0	7.0
75-01-4	Vinyl chloride	0.002 ^c	0.01 ^c
1330-20-7	Xylenes (total)	10.0 ^c	10.0 ^c
	Ionizable Organics		
65-85-0	Benzoic Acid	28	28
106-47-8	4-Chloroaniline (<i>p</i> -Chloroaniline)	0.028	0.028
95-57-8	2-Chlorophenol	0.035	0.175
120-83-2	2,4-Dichlorophenol	0.021	0.021
105-67-9	2,4-Dimethylphenol	0.14	0.14
51-28-5	2,4-Dinitrophenol	0.014	0.014
95-48-7	2-Methylphenol (<i>o</i> -Cresol)	0.35	0.35
86-30-6	<i>N</i> -Nitrosodiphenylamine	0.01 ^a	0.05

		Groundwater Remediation Objective	
CAS No.	Chemical Name	Class I (mg/L)	Class II (mg/L)
621-64-7	<i>N</i> -Nitrosodi- <i>n</i> -propylamine	0.01 ^a	0.01
87-86-5	Pentachlorophenol	0.001 ^{a,c}	0.005 ^c
108-95-2	Phenol	0.1 ^c	0.1 ^c
95-95-4	2,4,5-Trichlorophenol	0.7	3.5
88-06-2	2,4,6 Trichlorophenol	0.0064 ^a	0.032
	Inorganics		
7440-36-0	Antimony	0.006 ^c	0.024 ^c
7440-38-2	Arsenic	0.05 ^c	0.2 ^c
7440-39-3	Barium	2.0 ^c	2.0 ^c
7440-41-7	Beryllium	0.004 ^c	0.5 ^c
7440-42-8	Boron	2.0 ^c	2.0 ^c
7440-43-9	Cadmium	0.005 ^c	0.05 ^c
16887-00-6	Chloride	200 ^c	200 ^c
7440-47-3	Chromium, total	0.1 ^c	1.0 ^c
18540-29-9	Chromium, ion, hexavalent	---	---
7440-48-4	Cobalt	1.0 ^c	1.0 ^c
7440-50-8	Copper	0.65 ^c	0.65 ^c
57-12-5	Cyanide	0.2 ^c	0.6 ^c
7782-41-4	Fluoride	4.0 ^c	4.0 ^c
15438-31-0	Iron	5.0 ^c	5.0 ^c
7439-92-1	Lead	0.0075 ^c	0.1 ^c
7439-96-5	Manganese	0.15 ^c	10.0 ^c
7439-97-6	Mercury	0.002 ^c	0.01 ^c
7440-02-0	Nickel	0.1 ^c	2.0 ^c
14797-55-8	Nitrate as N	10.0 ^c	100 ^c
7782-49-2	Selenium	0.05 ^c	0.05 ^c
7440-22-4	Silver	0.05 ^c	---
14808-79-8	Sulfate	400 ^c	400 ^c

		Groundwater Remediation Objective	
CAS No.	Chemical Name	Class I (mg/L)	Class II (mg/L)
7440-28-0	Thallium	0.002 ^c	0.02 ^c
7440-62-2	Vanadium ²	0.049	---
7440-66-6	Zinc	5.0 ^c	10 ^c

Chemical Name and Groundwater Remediation Objective Notations

- ^a The groundwater Health Advisory concentration is equal to ADL for carcinogens.
- ^b Oral Reference Dose and/or Reference Concentration under review by USEPA. Listed values subject to change.
- ^c Value listed is also the Groundwater Quality Standard for this chemical pursuant to 35 Ill. Adm. Code 620.410 for Class I Groundwater or 35 Ill. Adm. Code 620.420 for Class II Groundwater.